A Proposed Strategic Plan for Ontario Fisheries

Discussion Paper

Ontario

Ministry of Natural Resources

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Minister

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FOREWORD

In the fall of 1987, a review began of "Strategic Planning for Ontario Fisheries -- Management Strategies for the 1980s," with the objective of reaffirming or adjusting the 1976 strategy to meet the needs of the 1990s and beyond.

The review was undertaken through a series of workshops held across the province, involving a cross-section of staff from the Ministry of Natural Resources and some representation from the federal Department of Fisheries and Oceans and the provincial ministries of Environment and Tourism and Recreation. Recommendations for this discussion paper were based on the results of these workshops. This draft, in turn, will be reviewed by government agencies and interested client groups in the development of a new strategy.

The workshops reaffirmed the goal and objectives for Ontario fisheries, and largely confirmed that the issues facing fisheries managers have not fundamentally changed over the last decade. The problems of declining aquatic ecosystem health remain, resulting in the loss of fish, primarily due to overfishing, and in the loss of fish habitat.

What is new in the 1980s is the increased public concern over the health of our environment and a growing public desire to become more meaningfully involved in decision-making concerning the use of our resources. There is increasing support, both from within government and from the public, for the concept of sustainable development; that is, for managing the provincial economy with the environment in mind, ensuring that our natural resources continue to benefit our children and grandchildren.

The major challenges that face us will be to:

- *Increase the scale and effectiveness of rehabilitation efforts, especially on the lower Great Lakes and southern inland waters;*
- *Strengthen habitat protection and harvest management efforts to ensure maintenance of fisheries, particularly in northern Ontario;*
- *Continue to improve public consultation and participation in fisheries management;*
- *Broaden enforcement efforts to place more emphasis on gaining co-operation and compliance of clients and to place a high priority on preventing further habitat loss;*
- *Allocate aquatic resources to provide a fair distribution of benefits for present and future generations; and*
- *Continue to create new working relationships between fisheries agencies and other institutions.*

We have inherited a priceless legacy in Ontario's fisheries resource. It will require the concerted efforts of government agencies, industries and individuals to meet these and other challenges to ensure that we pass on this cultural heritage to future generations. This draft document proposes such a framework for action.

INTRODUCTION AND HISTORY

There are approximately a quarter of a million inland lakes in this province, with between fifty thousand and one hundred thousand significant fisheries that require some degree of management. Forty per cent of the Great Lakes lie within Ontario's boundaries, and thousands of kilometres of streams flow throughout the province.

Ontario's fisheries resource provides the province with a wealth of social and economic benefits. Nearly 50 per cent of all Canadian sport fishing occurs in Ontario, where about three million people enjoy this popular activity every year. Angling expenditures on fishing supplies, food, lodging and transportation constitute approximately 15 per cent of provincial tourism revenue, and provide employment and income for those with businesses in the sporting goods and tourism industries. Ontario's commercial fishery supplies the largest quantity of freshwater fish in Canada. The fishery also produces wholesome food and provides thousands of jobs directly and indirectly. Many enjoy simply watching fish, and knowing that a healthy fisheries resource is a sign of a healthy environment.

By the early 1970s there was increasing concern over the deterioration of fish stocks in Ontario and elsewhere in Canada due to overfishing, land development, the introduction of exotic species and pollution. A Federal-Provincial task force was appointed in 1974 to recommend broad courses of action to deal with these and other issues.

This group ultimately produced a document entitled "Strategic Planning for Ontario Fisheries -- Management Strategies for the 1980s," which was approved by the Ontario Cabinet in 1976. This document, commonly called "SPOF," has been the guiding vision for fisheries management in Ontario since then.

ACHIEVEMENTS SINCE SPOF 1976

Notable gains in managing Ontario's fisheries resources have been made in the last decade by following the direction established by the 1976 strategy. Some examples:

- A more aware and committed public, mostly due to the Community Fisheries Involvement Program (CFIP);
- Initiation of the "beneficiary pay principle" by introducing a resident sport fishing licence, which helps to meet some of the increased costs of managing the resource;
- Assignment of catch quotas to commercial fishermen to ensure abundant fish stocks and sustained harvest;
- Initial development of the components of the Ontario Fisheries Information System, which helps to store, organize and analyse data needed for sound resource management decisions;
- Establishment of the Fisheries Assessment Unit network across the province, which provides managers with an understanding of representative lakes and fish communities;

- Initiation of an experimental management approach to improve management techniques and gain new knowledge;

- Development of the Youth Fisheries Education Program designed to give young people a basic understanding of the resource and instil a sense of the need for wise management;

- Development of district fisheries management plans, in consultation with the public, which identify long-term goals and the short-term actions needed to meet these goals;

- Recovery of walleye in the western basin of Lake Erie and evidence of early stages of rehabilitation of lake trout in Lake Superior;

- An increase in the number of co-operative undertakings with other agencies;

- A highly popular and successful salmon and trout fishery in the Great Lakes; and

- Great improvements in the ministry's ability to provide hatchery fish of the quantity and quality required for fisheries management programs.

SPOF 1976 has served the people of Ontario extremely well. It was decided in 1987 to review the strategic plan and either reaffirm or adjust it to meet the needs of the 1990s and beyond.

THE NEED FOR SUSTAINABLE DEVELOPMENT

Aquatic ecosystems are dynamic systems of which people and their activities are an integral part. This means that man's uses of components of those systems, including air, land, water and fish, must be compatible with his needs for quality of life, including economic prosperity and a healthy and safe environment. Moreover, as ecosystems are a heritage for future generations, the use of resources today must not compromise the ability of those generations to meet their needs. This concept, known as sustainable development, requires that "the adverse impacts on the quality of air, water and other natural elements [be] minimized so as to sustain the ecosystem's overall integrity." (from "Our Common Future," a report by the World Commission on Environment and Development.)

ISSUES AFFECTING FISHERIES MANAGEMENT; THEIR UNDERLYING CAUSES AND CONSEQUENCES

Healthy, naturally reproducing fish communities can only be ensured by managing the aquatic ecosystem and human activities as a vital part of that system. An ecosystem is a system of living organisms and their environments that are interconnected and interdependent. People are an integral part of the aquatic ecosystem; their activities impinge on it and are, in turn, affected directly and indirectly.

Many requirements for human life are satisfied by aquatic ecosystems. Aquatic ecosystems supply drinking water, food through the harvest of fish, and hydroelectric power. Aquatic ecosystems also provide recreation such as angling, boating and swimming.

Although there have been a number of significant achievements in the management of Ontario's fisheries over the last 13 years, many of the issues identified in the 1976 SPOF persist today. These issues have been grouped into three major categories: declining aquatic ecosystem health and loss of fish habitat; loss of fish; and shareholder conflicts.

DECLINING AQUATIC ECOSYSTEM HEALTH AND LOSS OF FISH HABITAT

Unfortunately, humans have not always conducted their activities with future generations in mind. There are numerous examples of how our uses of land, air, and water have adversely affected the health of aquatic ecosystems.

For example, improperly located shoreline development has altered critical nursery habitat for fish, and poor road construction has caused siltation of spawning areas. Residential and cottage development, particularly in southern Ontario, has destroyed much fish habitat. Herbicides and pesticides sprayed on land have filtered into lakes and rivers, and accumulated in fish.

The emissions of sulphuric and nitrous oxides from the burning of fossil fuels have lead to the formation of acidic precipitation, altering water quality and harming fisheries resources. The burning of fossil fuels also puts carbon dioxide into the air, causing gradual global warming, known as "the greenhouse effect." The increase in temperature may, by the early 2000s, raise sea levels and cause inland lakes and rivers to recede.

Construction of dams to assist in flood control and channelization of streams to improve drainage have had disastrous effects on fish populations and other aquatic ecosystems.

Improper logging practices have resulted in the removal of trees from streambanks, causing water temperatures to rise. Silt from road-building and debris from logging practices have entered lakes and rivers, covering spawning beds and smothering fish eggs and fry.

Direct and indirect disposal of municipal, industrial and agricultural wastes into our lakes and rivers also harms water quality.

These activities and a multitude of others have damaged fish habitat and affected the health of the aquatic ecosystem.

LOSS OF FISH

The main cause for loss of fish has been overfishing. Overfishing results from unrestricted access to the resource and government agencies have not been successful in developing the means to allocate benefits fairly among all shareholders.

Since there are over 250,000 lakes in the province, many people perceive that Ontario's fisheries resource can produce an unlimited number of fish. The resource seems vast, therefore the loss of a local fish population or fish habitat appears to be insignificant when viewed on a provincial scale. However, the accumulated effects of local incremental losses can be immense, leading to an overall degradation of the resource.

SHAREHOLDER CONFLICTS

People rely on the fisheries resource to satisfy different needs. Some rely on fish for food; others fish for sport; some derive their employment and income from fish; and still others simply want to observe fish. Many status Indians are in the unique position of having rights to take fish for food within the areas specified by their treaties. There are people who recognize and value fish as a barometer of the health of the human environment. In recent years there have been growing numbers of people who are concerned about the welfare of animals, including fish. In fact, everyone is a shareholder in the fisheries resource, and this ownership carries with it the responsibility for careful stewardship.

Federal, provincial and national governments and the public all share the responsibility for developing policy for the management of land, air and water. All have a role to play in creating a framework that will ensure the perpetuation of healthy aquatic ecosystems.

Inadequate Public Involvement

Although there is a growing public desire to be more involved in resource management decisions, the mechanisms for meaningful involvement between resource managers and the public are inadequate. There is an increasing

need for management partnerships that will determine a rational set of resource use strategies and foster a true sense of stewardship.

Currently, not all shareholders understand the requirements or desires of other shareholders, or the responsibilities of the governments that manage aquatic ecosystems. Conflicts arise between special interest groups that do not have a common value system and that consequently do not agree on what constitutes a fair allocation of the resource. In the past, resource managers may have contributed to these conflicts by making inconsistent allocation decisions. Misunderstandings also arise within governments, as well as between governments and interest groups, when respective agency roles and responsibilities are unclear.

Inability to Influence Demand

There is a common misconception that the provincial fisheries resource can withstand virtually unlimited fishing pressure. Managers have been unable to instil in the public an appreciation of the value of the fisheries resource, the limits to its productive capability and the true cost of management. Without this understanding, it has been difficult to convince the public to reduce fishing pressure, when necessary. Consequently, managers have been unable to effectively influence public demand.

Historically, fisheries managers have focused their efforts on meeting demand, particularly from special interest groups. However, the ability of managers to meet these demands is limited by several factors.

Inability to Meet Demand

There appears to be an increasing demand for fish and fishing opportunities. This is partly due to the changing demographics in Ontario, including growth of population centres, increasing affluence and more leisure time.

Fish and fishing experiences are valued as a major tourist attraction, and the demand for additional, high quality fishing opportunities to draw tourists to our province continues to grow.

Supply Limitations

Some demands can be unrealistic, considering that there is a limit to the amount of fish that can be harvested from healthy aquatic ecosystems. There are variations in the distribution and supply of fish across the province and access to certain types of fishing opportunities is restricted in some areas by geography, distance or private land ownership.

Finally, the tools needed to measure, forecast and regulate the demands of all shareholders are insufficient. As a consequence, harvest control is presently inadequate.

UNDERLYING CAUSES

The Common-Property View of the Resource

One of the underlying reasons for the degradation of aquatic ecosystems is that they have traditionally been thought of as a free, common-property resource. Access to lakes and rivers has largely been unconstrained, which has tended to encourage opportunistic, self-interested use. Consequently,

some individuals have reaped short-term benefits, whereas the long-term costs to the health of the aquatic ecosystem have been borne by all of society. E. P. Odum states, "As long as any resource is considered to be unlimited and for common use by everybody without constraints, then . . . overuse is inevitable, since the individual gains a temporary advantage by overuse, and only at some later time does he as an individual begin to suffer from the collective consequences of overuse." ("Fundamentals of Ecology", p. 245)

Incomplete Protection

There are other underlying causes of declining ecosystem health. Complete protection of the resource has not always been assured by the enforcement of existing legislation. The Ministry of Natural Resources' enforcement efforts have traditionally focused on prosecuting fishermen for relatively minor fishing infractions while some individuals and industries who have caused serious harm to fish and fish habitat have not been held accountable. To ensure fish populations and habitat are protected, enforcement of all regulations must be effective.

At present, enforcement priorities are not sufficiently clear; a stronger commitment to delivering and evaluating efforts on a provincial scale is required.

Ineffective Management Institutions

The mandate for resource protection and management is shared within and among agencies, and as a result it is often unclear which body should have the lead role. This fragmentation has also led, on occasion, to conflicts over resource management decisions. In addition, within each level of government there has been a reluctance to involve other agencies in policy or decision-making processes.

Although some interagency ventures are successful, such as the investigative studies on the effects of acid rain, too little consideration has been given to other programs that could be delivered more effectively by collaboration between agencies.

The present legislative mechanisms can also inhibit effective management. The Federal Fisheries Act, for example, is enforced by the province but amendments must be approved by the federal government -- a time-consuming and bureaucratically awkward arrangement. Provincial policy and legislation have also failed to keep up with the demands being placed on resources and not enough effort has been made to keep policies current.

Given the degree of interagency co-ordination required and the increasing complexity of resource management, clear direction and strong leadership are needed to successfully deliver programs based on the principle of integrated management to achieve sustainable use. There is a recognized need for general evaluation criteria that can be applied to all programs to determine their relevance and effectiveness.

Insufficient Knowledge

Finally, our knowledge of aquatic ecosystems is incomplete. A fuller understanding is needed of the distribution of fisheries resources across the

province and of the habitat requirements of individual species. The dynamics of fish communities are poorly understood; the socioeconomics of fisheries (including the relationships between supply and demand and the value of fisheries) is a largely unexplored science.

In all of these areas, we need a better understanding of the effects of human activities on a local, regional and global scale over both the short and long term. In order to protect healthy aquatic ecosystems and rehabilitate those now degraded, new ways to apply our understanding of environmental responses will be required. For example, the long-term repercussions of using hatchery-dependent fisheries in degraded systems are not known. The ability to create and perpetuate stable fisheries based primarily on a mix of hatchery-reared fish species does not yet exist.

Several factors have contributed to this lack of specific knowledge. Priorities for acquisition of new knowledge have not always reflected management needs. In some cases, necessary data have not been gathered because certain techniques for data collection do not exist. In other cases, available data are not presented in a format that is useful to managers for making decisions. Finally, new knowledge has not always been effectively communicated to managers, other agencies and the public.

CONSEQUENCES

Just as declining ecosystem health -- including loss of fish and fish habitat -- is caused by a number of factors, the consequences or effects are shown in a number of ways.

Lost Opportunities

Abundant, naturally reproducing supplies of fish are indicative of a healthy human environment and provide continuous and valuable opportunities for consumption, recreation, employment and income. The most significant consequences of declining aquatic ecosystem health are the lost opportunities for society, now and in the future, to derive these benefits from the fisheries resource. Loss of aquatic ecosystem health affects both those who derive their livelihood directly from the harvest of fish and those who derive indirect benefits -- through the tourism industry, for example.

Genetic Losses

When a fish population is reduced or eliminated, unique genetic material is lost. Stocks of fish have adapted over thousands of years to their specific environments and the blueprint for their survival is contained in their genes. The loss of these genetic resources is irreversible and limits the ability to rehabilitate native fish communities.

Contaminants

In degraded environments, contaminants accumulate in fish, impairing their survival and making them unsafe for humans to eat. The presence of contaminants in fish is a clear symptom of an unhealthy human environment.

Invasion of Exotics

Once an aquatic ecosystem has deteriorated, it is less able to withstand additional stresses. For example, exotic fish species can sometimes become established in degraded systems. As these exotics often prey on or compete with the native fish community, attempts to rehabilitate the fish community are seriously hindered.

Exotic fish species often have little economic value, and their presence and increased abundance can result in a direct or indirect loss of revenue as the highly valued native fish community declines.

Furthermore, attempts to eradicate exotic fish species are extremely costly and usually unsuccessful.

Hatchery-Dependent Fisheries

The stocking of hatchery fish has assisted rehabilitation efforts in the past by re-establishing naturally reproducing stocks or by diverting fishing pressure from the species that is being rehabilitated. When rehabilitation has not been possible, hatchery-dependent fisheries have sometimes been provided. These fisheries have produced fishing opportunities where none can be supplied naturally.

However, this technique is not a panacea, and is often ineffective and costly. Too frequently, hatchery-dependent fisheries have been promoted and accepted with an incomplete understanding of the long-term effects on the native fish community. Because hatchery fish are reared under optimum conditions (abundant food, clean water, and no predators) and are planted after the sensitive early life stages have passed, the presence of these fish creates the illusion that the system (and therefore the human environment) is in a healthy state. This misconception may lead to a loss of public support for rehabilitation over the longer term.

In addition, stocking of fish can lead to the loss of genetic resources that are critical to the long-term perpetuation of the population. For example, when hatchery fish are stocked on top of a wild population, they can breed with wild stocks, diluting the genetic makeup of the wild fish. No less important is the displacement of the gene pool of a wild stock by hatchery stock that has less genetic variability and thereby less ability to adapt to a changing environment.

SUMMARY OF ISSUES

A number of important issues affect the management of Ontario's fisheries today. Deterioration of ecosystem health has resulted in a loss of fish habitat which, along with overfishing, has resulted in the loss of fish. The lack of shared values and goals and the absence of an allocation formula have resulted in conflicts among resource shareholders.

All have led to reductions in benefits from the resource for shareholders.

To resolve these issues will require:

- Better public understanding of the importance of healthy aquatic ecosystems;
- Increased commitment to rehabilitation;
- Improved mechanisms for public consultation and involvement;
- Shared goals among shareholders and agencies;
- Better co-ordination among government agencies who share responsibility for management of aquatic ecosystems;
- A less complex legislative framework and amendments to legislation and policy development processes;
- Improved scientific and technical knowledge; and
- More effective resource protection.

Through a common vision of healthy aquatic ecosystems and through commitment from individuals, industry and government, we can meet the challenge of managing Ontario's fisheries in the 1990s and for the future.

STRATEGIC PLAN FOR ONTARIO FISHERIES

The following fisheries management principles and strategic management actions provide the framework for resolving these issues and achieving the goal for Ontario fisheries.

GOAL FOR ONTARIO FISHERIES

The goal for Ontario fisheries is:

> **Healthy aquatic ecosystems that provide sustainable benefits to satisfy, in part, society's requirements for:**
>
> **- a high quality environment;**
> **- wholesome food;**
> **- employment and income; and**
> **- recreational activity.**

OBJECTIVES

In order to provide sustainable benefits over the next decade and beyond, the objectives of the strategic plan will be:

- **To protect healthy aquatic ecosystems; and**
- **To rehabilitate degraded aquatic ecosystems.**

GUIDING PRINCIPLES

The combination of management experience, and the knowledge of advances in fisheries science, especially gained through the 1972 Symposium on Salmonid Communities in Oligotrophic Lakes (SCOL), and the 1976 Percid International Symposium on Walleye-Perch communities (PERCIS) has resulted in the establishment of a number of fisheries management principles. These will continue to be used as a foundation for the development of new policies and programs.

- Naturally reproducing fish communities based on native fish populations provide predictable and sustainable benefits with minimal long-term cost to society.
- There is a limit to the amount of fish that can be harvested from healthy aquatic ecosystems. Since the activities of man can diminish this productive capability, healthy naturally reproducing fish communities can be ensured only by managing the ecosystem and human activities as part of that system.
- Sustainable development of aquatic ecosystems requires that adverse impacts on the quality of air, water, and other natural elements be minimized in order to sustain the ecosystem's overall integrity.

- Fisheries are a precious cultural heritage. Therefore, the social, cultural and economic benefits and costs to society, both present and future, are important considerations in making sound resource management decisions.

- Good fisheries management is based on the best available knowledge. Fisheries science has found that similar fish communities respond to stress in similar and predictable ways. Consequently, results from intensive studies of representative fish communities can be applied to the management of all Ontario's fish resources.

STRATEGIC MANAGEMENT ACTIONS

The following strategic management actions have been developed to resolve the issues that hinder achievement of the goal for Ontario fisheries. There are five broad statements of direction, each of which has been elaborated on to provide a government-wide framework for effectively managing the province's aquatic ecosystems through the next decade and beyond. Figure 1 on page 14 shows how the strategic management actions work together to accomplish the goal and objectives.

The following five primary strategic management actions are recommended:

- Ensure benefits are sustained by protecting and rehabilitating aquatic ecosystems.

- Inform and involve the public to increase understanding and foster stewardship of the resource.

- Ensure effective program management and co-ordination among government agencies.

- Acquire and communicate essential knowledge for timely and effective resource management decision-making.

- Enforce firmly and effectively.

Specific secondary strategic management actions based on each of these primary statements follow.

Ensure Benefits Are Sustained By Protecting And Rehabilitating Aquatic Ecosystems

1. Ensure protection of healthy aquatic ecosystems and prevent further deterioration of degraded ecosystems.

2. Expand and improve efforts to rehabilitate degraded fish communities and habitat.

3. Allocate aquatic resources to provide a fair distribution of benefits to all shareholders while ensuring sustainable benefits for future generations.

    3.1 Ensure the objectives of resource protection and rehabilitation are embodied in Indian fishing agreements.

4. Provide for a variety of consumptive and nonconsumptive opportunities based on the principle that naturally reproducing fish communities provide predictable and sustainable benefits with minimal long-term cost to society.

    4.1 Base the use of non-native or hatchery-dependent fisheries on a thorough analysis of the ecological, social and economic costs and benefits over the long term.

Inform And Involve The Public To Increase Understanding And Foster Stewardship Of The Resource

1. Improve communication with the public about the value of healthy ecosystems, resource management principles and the results of fisheries management efforts.

2. Encourage communication among the public to foster harmonious patterns of resource use.

3. Develop and encourage public education and involvement programs based on the ecosystem approach to managing fisheries on a sustainable basis.

4. Improve consultation and involvement mechanisms for co-operative decision making and program delivery.

5. Encourage opportunities to work co-operatively with nongovernment organizations.

6. Extend application of the beneficiary pay principle to reflect the true cost of effective management and instil an appreciation of the value of the resource.

Ensure Effective Program Management And Co-ordination Among Government Agencies

1. Improve effectiveness of internal management systems.

   1.1 Ensure clear program direction.

   1.2 Improve program co-ordination to achieve integrated management of resources.

   1.3 Clarify responsibility and ensure accountability for decision-making, program delivery and evaluation.

   1.4 Ensure staff receive appropriate training in the skills required to be effective aquatic ecosystem managers.

2. Improve co-ordination among agencies sharing responsibility for managing aquatic ecosystems.

   2.1 Recommend government policy and legislation to clarify agency roles and responsibilities.

   2.2 Recommend government policy and legislation to ensure fisheries input into decisions affecting the ecosystem.

   2.3 Strengthen formal mechanisms for consultation among government agencies to improve co-ordination of resource management.

   2.4 Expand co-operative programs to increase efficiency and to ensure a comprehensive approach to ecosystem management.

Acquire And Communicate Essential Knowledge For Timely And Effective Resource Management Decision-Making

1. Set priorities for acquisition of new knowledge based on resource management needs.

2. Develop improved techniques for the acquisition and application of knowledge to protect and rehabilitate fish communities and habitat.

3. Develop understanding of fish communities and habitat and of the distribution and socioeconomics of fisheries resources. Increase understanding of the impacts of management actions and of environmental or social change.

4. Strengthen efforts to integrate information so that it is useful for decision-making.

5. Improve communication of knowledge to managers, other agencies and the public to ensure understanding of the implications of management options.

Enforce Firmly And Effectively

1. Ensure enforcement priorities reflect protection and rehabilitation needs.

   1.1 Strengthen enforcement efforts to protect fish habitat.

   1.2 Focus efforts on regulating harvest of naturally reproducing fish stocks.

2. Evaluate effectiveness of enforcement efforts.

3. Increase efforts to ensure compliance with legislation.

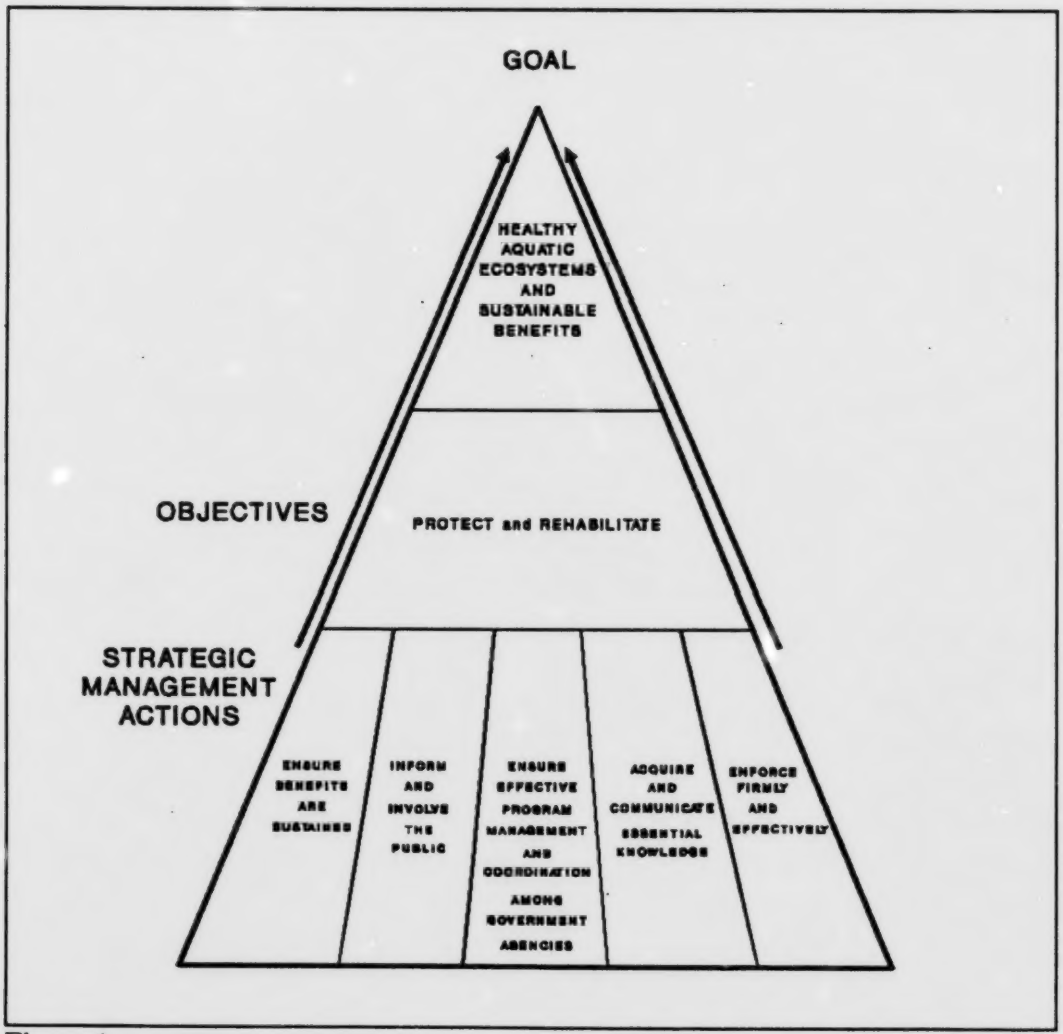
GOAL
HEALTHY AQUATIC ECOSYSTEMS AND SUSTAINABLE BENEFITS
OBJECTIVES
PROTECT and REHABILITATE
STRATEGIC MANAGEMENT ACTIONS
ENSURE BENEFITS ARE SUSTAINED
INFORM AND INVOLVE THE PUBLIC
ENSURE EFFECTIVE PROGRAM MANAGEMENT AND COORDINATION AMONG GOVERNMENT AGENCIES
ACQUIRE AND COMMUNICATE ESSENTIAL KNOWLEDGE
ENFORCE FIRMLY AND EFFECTIVELY

Figure 1
Strategic Plan for Ontario Fisheries

GLOSSARY

For the purposes of this document, the following definitions of key terms apply:

Allocation	Assignment of aquatic resources for fish production and other water uses. This includes providing for sufficient numbers of fish to escape harvest in order to perpetuate the fishery as well as assigning a portion of the annual allowable yield to a group or individual.
Aquatic Ecosystem Management	A whole-system approach to management that recognizes the interconnectedness of all living organisms, including humans, to their environment and to each other.
Beneficiary Pay Principle	The principle that people who pay directly for the use of a resource assume a stewardship role and are less inclined to waste or abuse the resource.
Community Fisheries Involvement Program (CFIP)	A program initiated in 1981 to encourage the public to actively participate with the Ministry of Natural Resources in fisheries management projects designed to directly benefit the fisheries resource.
Exotic	A species that is introduced to an ecosystem where it does not occur naturally. This introduction can be deliberate or accidental.
Experimental Management	Testing management options through controlled field experiments.
Fisheries Assessment Unit Network	A network of lakes, defined on the basis of their species composition, in which the response of fish communities to various stresses and levels of stress is monitored routinely.
Fishery	A term that is usually used to describe the human use of a group of fish, and includes catching, preparing and selling the fish.
Fish Stock	A group of fish of one species that is genetically and physically well-adapted to live in a particular area.
Habitat Rehabilitation	Restoring degraded fish habitat to its former condition so that fish and other animals can survive and reproduce in it.
Hatchery-dependent fisheries	Fisheries that depend on the stocking of hatchery-grown fish to supplement the supply of naturally reproducing fish or to create new fisheries where natural reproduction is not possible.
Native Fish	Self-reproducing fish species indigenous to a particular ecosystem, region or area.

Quota	Maximum allowable catch of a certain species, based on a sustained harvest.
Shareholders	All members of society, present and future, as everyone has an equal responsibility to perpetuate aquatic ecosystems for the benefit of present and future generations.
Socioeconomics (of fisheries)	The description, prediction and analysis of the impact of social and economic factors on fisheries resource use and protection.
Stress	A stimulus or succession of stimuli which, if of sufficient magnitude, will tend to disrupt the stability of a system.
Sustainable benefit	Something that satisfies present and future human needs and aspirations, such as a high quality environment, wholesome food, employment and income, and recreational activity.
Sustainable development	"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (Definition from the World Commission on Environment and Development)

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SPOF II

Explanatory Booklet

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WHAT IS SPOF II?

We need your organization to help in the design of a new Strategic Plan for Ontario Fisheries for the 1990s and beyond (SPOF II). Ultimately this plan will describe a provincewide course of co-operative public and private sector action to protect healthy aquatic ecosystems and restore those that are now degraded. The overall goal, which is faithful to the concept of sustainable development, is to have healthy aquatic ecosystems that provide long-term benefits to help satisfy society's need for a high quality environment, wholesome food, employment and income, and recreational activity.

ACHIEVEMENTS SINCE SPOF I

Since the original SPOF was approved by Cabinet in 1976, substantial gains have been made in managing Ontario's fisheries resources. Some examples:

- A more aware and committed public, mostly due to the Community Fisheries Involvement Program (CFIP);
- Initiation of the "beneficiary pay principle" by introducing a resident sport fishing licence, which helps to meet some of the increased costs of managing the resource;
- Assignment of catch quotas to commercial fishermen to ensure abundant fish stocks and sustained harvest;
- Initial development of the components of the Ontario Fisheries Information System, which helps to store, organize and analyse data needed for sound resource management decisions;
- Initiation of an experimental management approach to improve management techniques and gain new knowledge;
- Development of the Youth Fisheries Education Program designed to give young people a basic understanding of the resource and instil a sense of the need for wise management;
- Development of district fisheries management plans, in consultation with the public, which identify long-term goals and the short-term actions needed to meet these goals;
- Recovery of walleye in the western basin of Lake Erie and early evidence of rehabilitation of lake trout in Lake Superior;
- An increase in the number of co-operative undertakings with other agencies;
- A highly popular and successful salmon and trout fishery in the Great Lakes; and
- Great improvements in the ministry's ability to provide hatchery fish of the quantity and quality required for fisheries management programs.

SPOF I has been the guiding vision for fisheries management in Ontario since 1976. However, it is time to rethink the strategic plan in order to address current and future issues.

Examples of some of the major challenges ahead:

- to increase the scale and effectiveness of rehabilitation of degraded fish communities, especially on the lower Great Lakes and southern inland waters where damage is most severe;
- to strengthen habitat protection and harvest management efforts in order to ensure maintenance of healthy fisheries in northern Ontario;
- to continue to improve public consultation and participation in fisheries management;

Please note: A glossary of terms is provided on page 13.

- ❑ to broaden enforcement efforts to gain the co-operation and compliance of clients and to place a high priority on preventing further habitat loss;

- ❑ to allocate aquatic resources to users to provide a fair distribution of benefits for present and future generations; and

- ❑ to continue to improve working relationships among fisheries agencies and other institutions.

WHY IS A STRATEGIC PLAN FOR ONTARIO FISHERIES NEEDED?

The people of Ontario have inherited a priceless legacy in Ontario's fisheries resource. It will require the concerted efforts of government agencies, industries, interested client groups and individuals to ensure that we pass on this cultural heritage, in a healthy state, to our children and grandchildren.

There are approximately a quarter of a million inland lakes in this province, with between fifty thousand and one hundred thousand fish communities that require management. Forty per cent of the Great Lakes lies within Ontario's boundaries, and countless rivers and streams flow throughout the province. Ontario manages 24 per cent of Canada's total freshwater resources.

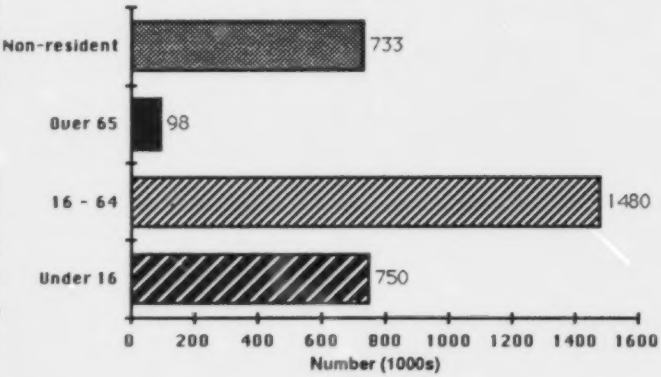
Ontario's fisheries resource is vitally important for a variety of reasons. A healthy fisheries resource indicates a healthy environment: if the health of aquatic ecosystems declines, fish populations soon suffer. In this way, fish act as a "miner's canary," and are an early warning signal of environmental degradation. Conversely, improving the health of the fisheries resource may be seen as an indication that Ontario is making progress towards sustainable development of aquatic ecosystems.

Many people enjoy the simple pleasure of watching fish, and marvelling at the wonders of nature. Fish are important economically, supporting the sport fishing and tourist industries, as well as the commercial fishery.

Angling expenditures amount to approximately 15 per cent of total tourism expenditures in Ontario ($1.76 billion in 1985). Ontario provides nearly 50 per cent of all the freshwater sport fishing opportunities in Canada, and fishing is enjoyed by almost three million people annually in this province.

Proportion of fish (by number) caught by anglers in Ontario

Number and characteristics of anglers in Ontario (1000s)

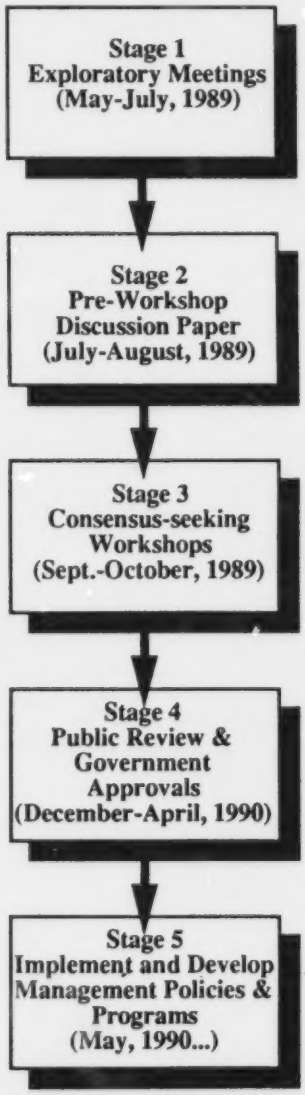


HOW ARE WE GOING TO GO ABOUT DESIGNING SPOF II?

Representatives from key government agencies and interested client groups will be invited to work with us in developing a new strategic plan. Input form the general public will also be sought. We are proposing to do this in several stages:

Stages 1-5
Chronology of Events

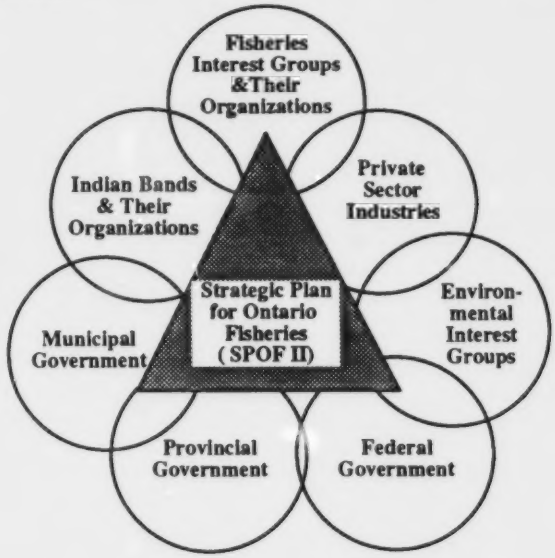
Our aim is to develop consensus with representatives from ministries and interested groups. Since many organizations have an especially keen interest in fisheries, we think each of these organizations should have a say in what SPOF II will propose.



WHO WILL BE INVITED TO PARTICIPATE?

There will be two levels of participation — those who will be invited to participate in workshops, and those who will be sent written drafts to review and comment on.

Groups invited to participate in the workshops currently include:



- Fisheries interest groups and their organizations — for instance, Ontario Federation of Anglers and Hunters, Northern Ontario Tourist Outfitters, Ontario Fish Producers Association;
- Environmental interest groups — for instance, Federation of Ontario Naturalists, Conservation Council of Ontario;
- Indian bands and their organizations — for instance, Grand Council Treaty #3, Nishnawbi-Aski Nation, Anishinabek Nation — Union of Ontario Indians;
- Municipal government and conservation authorities;
- Provincial government — for instance, Ministry of the Environment, Ministry of Northern Development and Mines, Ministry of Municipal Affairs, Ministry of Tourism and Recreation;
- Federal government — for instance, Department of Fisheries and Oceans and;
- Private and public sector industries — for instance, Ontario Hydro, the mining and forestry industry, developer.

We will need all major shareholders at the table if we are to develop a creative and consensus-based strategy.

WHERE AND WHEN WILL THESE EXPLORATORY MEETINGS AND SPOF II WORKSHOPS OCCUR?

The exploratory meetings will be scheduled at your convenience in your offices during May, June and July.

The SPOF II workshops will be held in September and October in Toronto at one of the major hotels or in a conference centre. The tentative dates are September 21-22 and October 12-13, 1989.

If these dates are unacceptable to you and your organization, please suggest alternative dates by June 30, 1989, and we will try to reschedule.

NEXT STEPS

If your organization is interested in working with us to develop SPOF II, the rest of this document should be of interest. We have provided a "first cut" assessment of the major issues and potential actions that could be addressed by the strategic plan. We need the benefit of your analyses, perspectives and observations. Please review the following material and note any suggested additions, deletions or modifications.

We will be contacting you by phone in the next several weeks to arrange a suitable time for an exploratory meeting.

The thoughts contained in this booklet are the result of an internal review of SPOF I, primarily within the Ministry of Natural Resources, to determine if the 1976 strategic plan required adjustment to meet the needs of the 1990s and beyond. The review was undertaken through a series of workshops, held across the province, involving a cross-section of staff from the Ministry of Natural Resources and some representation from the federal Department of Fisheries and Oceans and the provincial Ministries of the Environment and Tourism and Recreation.

The workshops reaffirmed the goal and objectives for Ontario fisheries, and largely confirmed that the issues facing fisheries managers have not fundamentally changed over the last decade. The problems remain of declining aquatic ecosystem health, loss of habitat, loss of fish, and shareholder conflicts.

What has changed in recent years is that public concern over the health of our environment has increased and there is a growing public desire to become more meaningfully involved in decisions about the use of our natural resources. There is increasing support, both from within government, and from the public, for the concept of environmentally sustainable economic development. By including major shareholders in the development of SPOF II, we are taking active steps to develop new partnerships that will assist greatly in establishing a comprehensive, consensus-based approach to managing Ontario's fisheries.

WHAT IS "SUSTAINABLE DEVELOPMENT"?

Aquatic ecosystems (lakes, streams, wetlands and their watersheds) are dynamic systems of which people and their activities are an integral part. This means that human use of those systems, including air, land, water and fish, must be compatible with human needs for quality of life, including economic prosperity and a healthy and safe environment. Moreover, as ecosystems are a heritage for future generations, the use of resources today must not compromise the ability of those generations to meet their needs. This concept, known as sustainable development, requires that "the adverse impacts on the quality of air, water and other

natural elements [be] minimized so as to sustain the ecosystem's overall integrity." (From "Our Common Future," a report by the World Commission on Environment and Development.)

WHAT ARE THE ISSUES CURRENTLY FACING ONTARIO'S FISHERIES?

Notable gains have been made towards protecting and rehabilitating the provincial fisheries resource over the last many years as a result of the direction provided by the 1976 strategic plan. However, three major issues, which vary in their severity from one part of the province to another, continue to face Ontario's fisheries managers:

- ❑ Declining aquatic ecosystem health and loss of fish habitat;
- ❑ Loss of fish;
- ❑ Shareholder conflicts.

Declining Aquatic Ecosystem Health and Loss of Fish Habitat

Unfortunately, humans have not always conducted their activities with the well-being of future generations in mind. There are numerous examples of how our uses of land, air, and water have degraded the health of aquatic ecosystems. Some of the following issues require solutions on a global scale, whereas others can be dealt with effectively at the local level:

- ❑ Gradual global warming, known as the "greenhouse effect," threatens to raise sea levels and cause inland lakes and rivers to recede by the early 2000s.
- ❑ Herbicides, pesticides and other contaminants have filtered into lakes and rivers and accumulated in fish and other life forms.
- ❑ Acidic precipitation has impaired water quality and harmed fisheries resources.
- ❑ Much fish habitat, particularly in southern Ontario, has been destroyed by improper shoreline development.
- ❑ The building of dams and the channelization of streams has often had disastrous effects on fish populations and other aquatic organisms.
- ❑ Improper logging practices have altered streambanks and the debris from logging, along with silt from road-building, has entered lakes and rivers, smothering fish eggs and fry.
- ❑ The direct and indirect disposal of municipal, industrial, and agricultural wastes into lakes and rivers has harmed water quality.

Loss of Fish

The main cause of reduction in the numbers of fish has been overfishing, because:

- ❑ Unrestricted access to lakes and rivers has resulted in overfishing.
- ❑ Government agencies have not been successful in developing the means to allocate benefits from the resource — including a healthy environment, food, jobs and income, and recreation — fairly among all shareholders.
- ❑ Seemingly insignificant losses of local fish populations accumulate, leading to an overall degradation of the resource.

Shareholder Conflicts

People rely on the fisheries resource to satisfy different needs. There are some who rely on fish for food, others who fish for sport, some who derive their employment and income from fish and still others who simply want to observe fish. Many status Indian people are in the unique position of having a treaty right to take fish for food on unoccupied Crown land within the areas specified by their treaties. There are people who recognize and value fish as a barometer of the health of the human environment. In recent years there have been growing

numbers of people who are concerned about the welfare of animals, including fish. In fact, everyone is a shareholder in the fisheries resource, and this ownership carries with it the responsibility for careful stewardship.

There is an increasing need for broader management partnerships that will develop a rational set of resource use strategies and foster a true sense of stewardship, since:

- ❑ The opportunities for meaningful public involvement at all stages of management are presently inadequate.

- ❑ Conflicts arise between shareholders who do not have a common set of values and who consequently do not agree on how to share the resource.

- ❑ In the past, resource managers have not always made consistent decisions,and thereby may have contributed to conflicts about resource-sharing.

Current issues include the following:

❑ **Inability to Influence Demand**

- Managers have been unable to effectively influence user demand for fish and fishing opportunities.

❑ **Inability to Meet Demand**

- Based on long-term trends, there seems to be an increasing demand for fish and fishing opportunities, largely due to the growth of population centres, increasing affluence, more leisure time and the continuing demand for high quality fishing opportunities to draw tourists to the province.

❑ **Supply Limitations**

- Demands are often unrealistic, and can easily lead to over-harvesting.

- The supply and distribution of fish vary greatly across the province, and access to fishing is restricted in some areas by geography, distance, or private land ownership.

- Harvest control is presently inadequate; managers are unable to measure, forecast and regulate demand.

Underlying Causes

The basic problems underlying these issues are:

❑ **The Common-Property View of the Resource**

- The traditional viewpoint has been that fish and aquatic ecosystems are a free, common-property resource.

❑ **Incomplete Protection**

- Comprehensive resource protection has not always been assured by the enforcement of existing legislation.

- Enforcement priorities are not sufficiently clear.

- A commitment to evaluating the results of efforts is needed on a provincewide scale.

❑ **Ineffective Management Institutions**

- The mandate for resource protection and management is shared among several agencies, and it is often unclear which one should take the lead role.

- Fragmentation of management and protection responsibilities has sometimes led to conflicts regarding resource management decisions.

- Government agencies have sometimes been reluctant to involve others in policy or decision-making processes.

- Present legislative mechanisms are time-consuming and bureaucratically awkward.

- Provincial policy and legislation have failed to keep up with demands placed on resources.

- Inter-agency co-ordination requires improvement.

- Clearer direction and stronger leadership are needed

. to deliver programs based on the principle of integrated management to achieve sustainable development.

- Criteria to evaluate the relevance and effectiveness of all programs are insufficient at present.

❑ **Insufficient Knowledge**

- The distribution of the fisheries resource across Ontario is only partially known.

- The habitat requirements of various species is fragmentary.

- The dynamics of fish communities is poorly understood.

- The socio-economics of fisheries is largely an unexplored science.

- The effects of human activities on a local, regional and global scale over the short and long term are generally misunderstood.

- New ways to apply understanding of environmental response to change are needed (e.g. the repercussions of using hatchery-dependent fisheries are not known. The ability to create and perpetuate stable fisheries based on hatchery-reared fish species does not yet exist).

- The needs of resource managers have not always been taken into account when the priorities for new scientific knowledge have been determined.

- In some cases, techniques for data collection do not yet exist.

- Data are not always presented in a format that is useful for decision-making.

- New knowledge has not always been effectively communicated to resource managers, other agencies and the public.

Consequences

The consequences of the above issues and underlying causes are shown in a number of ways:

❑ **Lost Opportunities**

- Declining aquatic ecosystem health results in lost opportunities for society to derive benefit from the fisheries resource. Loss of benefits can be direct (e.g., an unhealthy environment, contaminated food, loss of jobs and income) or indirect (e.g., tourist operators would suffer from the loss of a healthy, high quality fisheries resource).

❑ **Genetic Losses**

- Unique genetic material is irreversibly lost when fish populations are reduced or eliminated, and hinders rehabilitation effort.

❑ **Contaminants**

- Contaminants accumulate in fish, impairing their survival, making them unsafe for humans to eat.

❑ **Invasion of Exotics**

- Exotic species can become established in degraded systems and prey on, or compete with, the native fishery, again hampering attempts to rehabilitate.

- Exotic fish species often have little economic value and cause a direct or indirect loss of revenue as highly-valued fish species decline.

❑ **Hatchery-Dependent Fisheries**

- The stocking of hatchery fish has occasionally assisted rehabilitation efforts in the past by re- establishing wild stocks or diverting fishing pressure, from over-fished native populations. However, this technique is not a panacea, and is often ineffective and costly. Too frequently, hatchery-dependent fisheries have been promoted and accepted with an incomplete understanding of long-term effects on the native fish community. The presence of hatchery fish, reared under optimum conditions before being stocked, creates the illusion that the aquatic ecosystem is in a healthy state. This misconception

may lead to a loss of public support for rehabilitation over the longer term.

- The stocking of hatchery fish can dilute the genetic makeup of wild stocks, or displace the gene pool of wild stock with hatchery stock, which has less genetic variability, and therefore less ability to adapt to a changing environment.

A STRATEGIC PLAN FOR ONTARIO FISHERIES

Through a common vision of healthy aquatic ecosystems and commitment from individuals, industry and government, we can meet the challenge of managing Ontario's fisheries for the future.

The following fisheries management principles and strategic management actions suggest a draft plan for resolving these issues and achieving the goal for Ontario fisheries.

GOAL FOR ONTARIO FISHERIES

Healthy aquatic ecosystems that provide sustainable benefits to satisfy, in part, society's present and future requirements for:

- a high quality environment;
- wholesome food;
- employment and income; and
- recreational activity.

OBJECTIVES

In order to provide sustainable benefits over the next decade and beyond, the objectives of the strategic plan will be:

- to protect healthy aquatic ecosystems; and
- to rehabilitate degraded aquatic ecosystems.

GUIDING PRINCIPLES

The combination of management experience and the knowledge of advances in fisheries science, especially gained from the 1972 Symposium on Salmonid Communities in Oligotrophic Lakes (SCOL), and the 1976 Percid International Symposium on Walleye-Perch communities (PERCIS) has resulted in the recognition of a number of fundamental truths that have been used as a basis for reasoning in fisheries management. It is proposed that these truths, or "guiding principles," continue to be the foundation of new policy and program development.

Naturally reproducing fish communities, based on native fish populations, provide predictable and sustainable benefits with minimal long-term cost to society.

Over 90 per cent of the fish caught in Ontario are naturally reproducing, native species, which have evolved since the last ice age to successfully adapt to the water body in which they live.

Several exotic species that originated in different aquatic environments are now found in Ontario's lakes and rivers. Some of these exotic species have successfully established themselves, and many have become pests. Carp, sea lamprey, smelt and alewife are good examples of nuisance species.

However, anglers are more familiar with examples such as brown trout, rainbow trout, and the pacific salmons, which have often required expensive, high-risk hatchery support to provide sufficient numbers for a sport fishery. Native, naturally reproducing fish species, on the other hand, are very predictable, cost-effective and have little risk of failure.

There is a limit to the amount of fish that can be harvested from healthy aquatic ecosystems. Since human activities can diminish this productive capability, healthy fish communities can be ensured only by managing the ecosystem and human activities as part of that system.

Fish, in their natural environment, are rarely visible to humans. The damaging effects of overfishing are not readily apparent, and for that reason, some people are not conscientious about self-restraint in limiting their catch.

Other human activities can debilitate the productivity and resilience of aquatic ecosystems. The lower Great Lakes are notable examples of the combined effects of overfishing, pollution, habitat degradation and exotic introductions that have acted to significantly impair the capability of fish communities to support a healthy fishery. It will be enormously expensive, and will take many years, to restore the Great Lakes fish communities to a semblance of their original health.

Sustainable development of aquatic ecosystems requires that adverse impacts on the quality of air, water, and other natural elements be minimized in order to sustain the ecosystem's overall integrity.

Uses of aquatic ecosystems must be environmentally sustainable if society is to continue to benefit from economic development. The present state of Toronto's waterfront and rivers is a good example of development that has gone too far and has eroded the quality of these waters, denying people the pleasure of fishing or swimming.

Fisheries are a precious cultural heritage. Therefore, the social, cultural and economic benefits and costs to society, both present and future, are important considerations in making sound resource management decisions.

For thousands of years, fish have provided an important source of animal protein for humans. Both prior to and during European settlement in Ontario, fish were used to barter for goods and services. These fish later became the basis for the largest freshwater commercial fishery in North America. More recently, Ontario's fisheries resource has become the object of considerable leisure time activity and has contributed substantially to the tourism industry. The state of fish communities is increasingly recognized as an important measure of the health of aquatic ecosystems.

Resource management decisions must take into account the enormous contribution the fisheries resource has made to the material, physical and cultural well-being of the people of Ontario, and ensure that these benefits continue to be provided in the future.

Good fisheries management is based on the best available knowledge. Fisheries science has found that similar fish communities respond to stress in similar and predictable ways. Consequently, results from intensive studies of representative fish communities can be applied to the management of all Ontario's fish resources.

Freshwater fisheries management is a young science that has gradually evolved over the past several decades as the understanding of fish species and fish communities slowly matures.

STRATEGIC MANAGEMENT ACTIONS

The following strategic management actions can resolve the issues that currently face fisheries managers. There are five broad statements of direction, which provide a framework for effectively managing the province's aquatic ecosystems through the next decade and beyond. The figure on the following page shows how the strategic management actions work together to accomplish the goal and objectives.

The following five primary strategic management actions are recommended:

- Ensure benefits are sustained by protecting and rehabilitating aquatic ecosystems.
- Inform and involve the public to increase understanding and foster stewardship of the resource.
- Ensure effective program management and co-ordination among government agencies.
- Acquire and communicate essential knowledge for timely and effective resource management decision-making.
- Enforce firmly and effectively.

Specific strategic management actions based on each of these primary statements follow.

Ensure Benefits are Sustained by Protecting and Rehabilitating Aquatic Ecosystems

1. Ensure protection of healthy aquatic ecosystems and prevent further deterioration of degraded ecosystems.

2. Expand and improve efforts to rehabilitate degraded fish communities and habitat.

3. Allocate aquatic resources to provide a fair distribution of benefits to all shareholders while ensuring sustainable benefits for future generations.

   3.1 Ensure the objectives of resource protection and rehabilitation are embodied in Indian fishing agreements.

PROPOSED STRATEGIC PLAN FOR FISHERIES

GOAL
Healthy Aquatic Ecosystems and Sustainable Benefits
OBJECTIVES
Protect and Rehabilitate
STRATEGIC MANAGEMENT ACTIONS
Ensure Benefits are Sustained
Inform and Involve the Public
Ensure Effective Program Management and Coordination Among Government Agencies
Acquire and Communicate Essential Knowledge
Enforce Firmly and Effectively

4. Provide for a variety of consumptive and nonconsumptive opportunities based on the principle that naturally reproducing fish communities provide predictable and sustainable benefits with minimal long-term cost to society.

   4.1 Base the use of non-native or hatchery-dependent fisheries on a thorough analysis of the ecological, social and economic costs and benefits over the long term.

Inform and Involve the Public to Increase Understanding and Foster Stewardship of the Resource

1. Improve communication with the public about the value of healthy ecosystems, resource management principles and the results of fisheries management efforts.

2. Encourage communication among the public to foster harmonious patterns of resource use.

3. Develop and encourage public education and involvement programs based on the ecosystem approach to managing fisheries on a sustainable basis.

4. Improve consultation and involvement mechanisms for co-operattive decision-making and program delivery.

5. Encourage opportunities to work co-operatively with nongovernment organizations.

6. Extend application of the user pay principle to reflect the true cost of effective management and instil an appreciation of the value of the resource.

Ensure Effective Program Management and Co-ordination Among Government Agencies

1. Improve effectiveness of internal management systems.

   1.1 Ensure clear program direction.

   1.2 Improve program co-ordination to achieve integrated management of resources.

   1.3 Clarify responsibility and ensure accountability for decision-making, program delivery and evaluation.

   1.4 Ensure staff receive appropriate training in the skills required to be effective aquatic ecosystem managers.

2. Improve co-ordination among agencies sharing responsibility for managing aquatic ecosystems.

   2.1 Recommend government policy and legislation to clarify agency roles and responsibilities.

   2.2 Recommend government policy and legislation to ensure fisheries input into decisions affecting the ecosystem.

   2.3 Strengthen formal mechanisms for consultation among government agencies to improve co-ordination of resource management.

   2.4 Expand co-operative programs to increase efficiency and to ensure a comprehensive approach to ecosystem management.

Acquire and Communicate Essential Knowledge for Timely and Effective Resource Management Decision-making

1. Set priorities for acquisition of new knowledge based on resource management needs.

2. Develop improved techniques for the acquisition and application of knowledge to protect and rehabilitate fish communities and habitat.

3. Develop understanding of fish communities and habitat and of the distribution and socioeconomics of fisheries resources. Increase understanding of

the impacts of management actions and of environmental or social change.

4. Strengthen efforts to integrate information so that it is useful for decision-making.

5. Improve communication of knowledge to managers, other agencies and the public to ensure understanding of the implications of management options.

Enforce Firmly and Effectively

1. Ensure enforcement priorities reflect protection and rehabilitation needs.

   1.1 Strengthen enforcement efforts to protect fish habitat.

   1.2 Focus efforts on regulating the harvest of naturally reproducing fish stocks.

2. Evaluate effectiveness of enforcement efforts.

3. Increase efforts to ensure compliance with legislation.

GLOSSARY

For the purposes of this document, the following definitions of key terms apply:

Allocation:
Assignment of aquatic resources for fish production and other water uses. This includes providing for sufficient numbers of fish to escape harvest in order to perpetuate the fishery as well as assigning a portion of the annual allowable yield to a group or individual.

Aquatic Ecosystem Management:
A whole-system approach to management that recognizes the interconnectedness of all living organisms, including humans, to their environment and to each other.

Beneficiary Pay Principle:
The principle that people who pay directly for the use of a resource assume a stewardship role and are less inclined to waste or abuse the resource.

Community Fisheries Involvement Program (CFIP):
A program initiated in 1981 to encourage the public to actively participate with the Ministry of Natural Resources in fisheries management projects designed to directly benefit the fisheries resource.

Exotic:
A species that is introduced to an ecosystem where it does not occur naturally. This introduction can be deliberate or accidental.

Experimental Management:
Testing management options through controlled field experiments.

Fisheries Assessment Unit Network:
A network of lakes, defined on the basis of their species composition, in which the response of fish communities to various stresses and levels of stress is monitored routinely.

Fishery:
A term that is usually used to describe the human use of a group of fish, and includes catching, preparing and selling the fish.

Fish Stock:
A group of fish of one species that is genetically and physically well-adapted to live in a particular area.

Habitat Rehabilitation:
Restoring degraded fish habitat to its former condition so that fish and other animals can survive and reproduce in it.

Hatchery-Dependent Fisheries:
Fisheries that depend on the stocking of hatchery-grown fish to supplement the supply of naturally reproducing fish or to create new fisheries where natural reproduction is not possible.

Native Fish :
Self-reproducing fish species indigenous to a particular ecosystem, region or area.

Quota:
Maximum allowable catch of a certain species, based on a sustained harvest.

Shareholders:
All members of society, present and future, as everyone has an equal responsibility to perpetuate aquatic ecosystems for the benefit of present and future generations.

Socioeconomics (of fisheries):
The description, prediction and analysis of the impact of social and economic factors on fisheries resource use and protection.

Stress:
A stimulus or succession of stimuli which, if of sufficient magnitude, will tend to disrupt the stability of a system.

Sustainable benefit:
Something that satisfies present and future human needs and aspirations, such as a high quality environment, wholesome food, employment and income, and recreational activity.

Sustainable development:
"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (Definition from the World Commission on Environment and Development)

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A Proposed Strategic Plan For Ontario Fisheries

SPOF II

DRAFT

January 1990

Ontario
Ministry of
Natural
Resources
Lyn McLeod
Minister

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Ministry of Natural Resources
Minister

Ministère des Richesses naturelles
Ministre

Queen's Park
Toronto, Ontario
M7A 1W3
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January, 1990

Dear Concerned Citizen:

Thank you for your interest in Ontario's fisheries resource.

The Ministry is committed to ensuring sustainable development of the natural resources of this province. In this regard, the Ministry of Natural Resources has embarked on a consultation process with the public to determine a new Strategic Plan for Ontario Fisheries.

Last September, the Ministry met with 25 government and non-government organizations to review and discuss a proposed plan for the province's fisheries. The results of the deliberations have been incorporated in the enclosed draft strategic plan.

While there has been extensive review by these key shareholders, the Ministry realizes further consultation is required. We need the benefit of your comments on the proposed plan, and your commitment to action if we are to achieve our common goal of healthy aquatic ecosystems.

This is an opportunity to contribute to the development of a major strategy that will affect not only your lives, but the lives of your children and your grandchildren.

Please direct your comments in writing by March 16, 1990 to:

Ministry of Natural Resources
G.R. Whitney, Director
Fisheries Branch
Whitney Block, Queen's Park
Toronto, Ontario M7A 1W3

I would encourage you to respond to this request. Rest assured your opinions will be taken into consideration in the development of a new fisheries strategic plan for the people of Ontario.

Yours truly,

Lyn McLeod

Lyn McLeod
Minister

A Proposed Strategic Plan For Ontario Fisheries

SPOF II

DRAFT

January 1990

Ontario
Ministry of
Natural
Resources
Lyn McLeod
Minister

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INTRODUCTION

Why is the Fisheries Resource Important?

The people of Ontario have inherited a priceless legacy in Ontario's fisheries resource. Although the Ministry of Natural Resources is responsible for fisheries management in the province, it will take the concerted efforts of government agencies, industries, interested client groups and individuals to ensure a healthy fishery can be passed on to our children and grandchildren.

Even physically, our fisheries are a huge responsibility. The province manages 24 per cent of Canada's freshwater - including 40 per cent of the Great Lakes and countless rivers and streams. There are approximately a quarter of a million inland lakes in this province, with between 50,000 and 100,000 fish communities that require management.

One reason that our fisheries resource is vitally important is that fish can act as environmental indicators. If the health of aquatic ecosystems declines, fish populations soon suffer. Like "miner's canaries," fish are an early warning signal of environmental degradation. Conversely, improvements in fisheries can indicate progress and inspire us to redouble our efforts to achieve sustainable development of aquatic ecosystems.

Fish are important economically, supporting the sport fishing and tourist industries, as well as the commercial fishery. Healthy fisheries also have an inestimable value because of the pleasure many people get simply watching fish and marvelling at nature.

What is SPOF II?

The Ontario Government, in consultation with the public, is designing a new Strategic Plan for Ontario Fisheries (SPOF II) for the 1990s and beyond. This document will serve as a blueprint for a provincewide course of action involving the public and private sectors. This plan will help protect healthy aquatic ecosystems and rehabilitate those that are now degraded. The overall goal, which is faithful to the concept of sustainable development, is to have healthy aquatic ecosystems that provide long-term benefits to help satisfy society's need for a high-quality environment, wholesome food, employment and income, recreational activity, and cultural heritage.

What is Sustainable Development?

Sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (definition from the World Commission on Environment and Development). People and their activities are an integral part of aquatic ecosystems. This means that human use of those systems, including air, land, water, and fish, must be compatible with human needs for quality of life, including economic prosperity and a healthy and safe environment.

Progress Since SPOF I

In 1976 SPOF I was approved by Cabinet to provide a long-term plan for managing Ontario's fisheries resources. SPOF I was a beginning and has led to substantial gains, such as:

- A more aware and committed public, mostly due to the Community Fisheries Involvement Program (CFIP);
- Introduction of a resident sport fishing licence, which helps to meet some of the increased costs of managing the resource;

- Assignment of catch quotas to commercial fishermen to ensure abundant fish stocks and sustained harvest;

- Initial development of the components of the Ontario Fisheries Information System which helps to store, organize and analyse data needed for sound resource management decisions;

- Initiation of an experimental management approach to improve management techniques and gain new knowledge;

- Development of the Youth Fisheries Education Program designed to help young people understand the resource and the need for wise management;

- Development of district fisheries management plans, in consultation with the public, to identify long-term goals and the short-term actions needed to meet these goals;

- Recovery of walleye in the western basin of Lake Erie and early evidence of rehabilitation of lake trout in Lake Superior;

- An increase in the number of co-operative undertakings with other agencies; and

- Great improvements in the province's capability to provide hatchery fish of the quantity and quality required for fisheries management programs.

Why Do We Need a Revised Strategic Plan?

A revised strategic plan is needed because of:

- Increased public concern over the health of our environment;

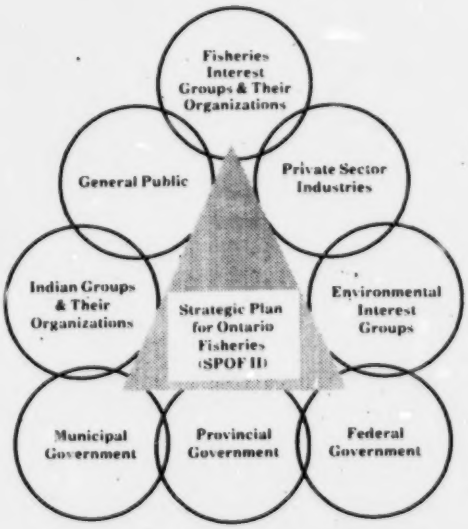
- Widespread support for environmentally sustainable economic development (referred to as sustainable development), and;

- Growing public desire to become more involved in decisions about the use of our natural resources.

The Ministry of Natural Resources is including major shareholders in the development of SPOF II as a first step in developing new partnerships. This will provide a comprehensive, consensus-based approach, while retaining Ontario's ultimate responsibility for managing the fisheries resource.

How is SPOF II being developed?

Consensus among the people of Ontario is essential to the development of SPOF II. To date, representatives from key government agencies and interested client groups have been working together on the strategy. There has been a series of exploratory meetings, leading up to a major workshop on SPOF II. Input from the general public is being sought through a review of this draft document.



WHAT ARE THE ISSUES FACING ONTARIO FISHERIES?

Three major issues currently threaten Ontario's fisheries resource:

- Declining aquatic ecosystem health and loss of fish habitat;
- Loss of fish; and
- Shareholder conflicts.

Declining Aquatic Ecosystem Health and Loss of Fish Habitat

People have not always conducted their activities with the well-being of future generations in mind. There are numerous examples where our use of land, air and water has degraded the health of aquatic ecosystems. Some of the following issues require solutions on a global scale, whereas others can be dealt with effectively at the local level:

- Gradual global warming, known as the "greenhouse effect," threatens to raise sea levels and cause inland lakes and rivers to recede by the early 2000s.
- Herbicides, pesticides and other contaminants have filtered into lakes, rivers, and groundwater, accumulating in fish and other life forms.
- Acidic precipitation has impaired water quality and harmed fisheries resources.
- Fish habitat in many areas, particularly in southern Ontario, has been destroyed by poorly-designed shoreline and watercourse development.
- The building of dams and the channelization of streams has often had disastrous effects on fish populations and other aquatic organisms.
- Improper logging practices have altered streambanks and the debris from logging, along with silt from road-building, has entered lakes and rivers, smothering fish eggs and fry.
- The direct and indirect disposal of municipal, industrial, and agricultural wastes into lakes and rivers has degraded water quality.

Loss of Fish

The main cause of reduction in the numbers of fish has been overfishing, because of:

- Unrestricted access to lakes and rivers - even if laws of possession, gear and licence are obeyed, certain waterbodies can be so heavily fished that the fish stocks cannot be sustained.
- Seemingly insignificant losses of local fish populations accumulating and leading to an overall degradation of the resource.

Shareholder Conflicts

People rely on the fisheries resource to satisfy different needs. There are some who rely on fish for food, others who fish for sport, some who derive their employment and income from fish and still others who simply want to observe fish. Many status Indian people are in the unique position of having a treaty right to take fish for food on unoccupied Crown land within the areas specified by their treaties. There are people who recognize and value fish as a barometer of the health of the human environment. In recent years there have been growing numbers of people who are concerned about the welfare of animals, including fish. For these reasons, everyone has become a shareholder in the fisheries resource; this ownership carries with it the responsibility for careful stewardship.

There is an increasing need for broader management partnerships to establish a rational set of resource-use strategies and foster a true sense of stewardship, since:

- The opportunities for meaningful public involvement at all stages of management are currently inadequate.

- Conflicts arise among shareholders who do not have a common set of values and consequently do not agree on how to share the resource.

- Resource managers have not always made consistent decisions, thereby contributing to conflicts in resource-sharing.

Current issues include the following:

- **Inability to influence demand**

  - Managers have been unable to effectively influence user demand for fish and fishing opportunities.

- **Inability to meet demand**

  - Based on long-term trends, the demand for fish and fishing opportunities seems to be increasing, largely due to the growth of population centres, increasing affluence, more leisure time and the continuing demand for high-quality fishing opportunities to draw tourists to the province.

- **Supply limitations**

  - Demands are often unrealistic, and can easily lead to over-harvesting.

  - The supply and distribution of fish vary greatly across the province, and access to fishing is restricted in some areas by geography, distance, or private land ownership.

  - Harvest control is currently inadequate; managers are unable to measure, forecast and regulate demand.

Underlying Causes

The basic problems underlying the issues that threaten Ontario's fisheries are:

- **The common-property view of the resource**

  - Traditionally fish and aquatic ecosystems have been viewed as a free, common property. This results, in part, from an under-valuation of the resource. It can be argued that people who do not pay directly for use of a resource are more inclined to waste or abuse the resource.

- **Incomplete protection**

  - Comprehensive resource protection has not always been assured by the enforcement of existing legislation.

  - Enforcement priorities are not clear.

  - A commitment to evaluating the results of efforts is needed on a provincewide scale.

- **Ineffective management institutions**

  - The mandate for resource protection and management is shared among several agencies, and it is often unclear which one should take the lead role.

  - Fragmentation of management and protection responsibilities has sometimes led to conflicts in resource management.

  - Government agencies have sometimes

been reluctant to involve others in policy or decision-making.

- Present legislative mechanisms are time-consuming and bureaucratically awkward.

- Provincial policy and legislation have failed to keep up with demands placed on resources.

- Inter-agency co-ordination needs improvement.

- Clearer direction and stronger leadership are needed to deliver programs based on the principle of integrated management to achieve sustainable development.

- Criteria to evaluate the relevance and effectiveness of all programs are insufficient at present.

- **Insufficient knowledge**

  - There is often a lack of comprehensive knowledge about the state of the resource.

  - The distribution of the fisheries resource across Ontario is only partly known.

  - The knowledge of habitat requirements for various species is fragmentary.

  - The dynamics of fish communities are not clearly understood.

  - The socio-economics of fisheries is largely an unexplored science.

  - The effects of human activities on a local, regional and global scale over the short and long term are generally poorly understood.

  - The needs of resource managers have not always been taken into account when the priorities for seeking new scientific knowledge have been determined.

  - In some cases, techniques for data collection do not yet exist.

  - Data are not always presented in a format that is useful for decision making.

  - New knowledge has not always been effectively communicated to resource managers, other agencies and the public.

Consequences

The consequences of the above issues and underlying causes are shown in a number of ways:

- **Lost opportunities**

  - Declining aquatic ecosystem health results in lost opportunities for society to derive benefit from the fisheries resource. Loss of benefits can be direct (e.g., an unhealthy environment, contaminated food, loss of jobs and income) or indirect (e.g., tourist operators would suffer from the loss of a healthy, high quality fisheries resource).

- **Genetic losses**

  - Unique genetic material is irreversibly lost when fish populations are reduced or eliminated. This hinders rehabilitation efforts.

- **Contaminants**

  - Contaminants accumulate in fish, impairing their reproduction and

survival, and making them unsafe for humans to eat.

- **Invasion of exotics**

  - Exotic species can become established in degraded systems and prey on, or compete with, the native fishery, again hampering attempts to rehabilitate.

  - Exotic fish species, such as carp and sea lamprey, often have little economic value and cause a direct or indirect loss of revenue as highly-valued fish species decline.

- **Hatchery-dependent fisheries**

  - Stocking hatchery fish has assisted rehabilitation efforts in the past by re-establishing wild stocks or diverting fishing pressure from overfished native populations. However, the technique of providing fisheries dependent on continuous stocking has been promoted and accepted with an incomplete understanding of long-term effects on the native fish community. The presence of hatchery fish in waterbodies creates the illusion that the aquatic ecosystem is in a healthy state. This false impression may lead to a loss of public support for the longer-term objective of rehabilitation.

  - Stocking hatchery fish can dilute the genetic makeup of wild stocks. It can also displace the gene pool of wild stock with hatchery stock which has less genetic variability and therefore, less ability to adapt to a changing environment.

A STRATEGIC PLAN FOR ONTARIO FISHERIES

Through a common vision of healthy aquatic ecosystems and commitment from individuals, industry and government, we can meet the challenge of managing Ontario fisheries for the future.

The Strategic Plan for Ontario Fisheries consists of the following four important components:

- Goal for Ontario fisheries;
- Objectives to meet the goal;
- Guiding Principles to form the foundation of fisheries management; and
- Strategic Management Actions to resolve important fisheries management issues.

Goal for Ontario Fisheries

Healthy aquatic ecosystems that provide sustainable benefits to satisfy, in part, society's present and future requirements for: a high-quality environment, wholesome food, employment and income, recreational activity, and cultural heritage.

Objectives

In order to provide sustainable benefits over the next decade and beyond, the objectives of the strategic plan shall be:

- **To protect healthy aquatic ecosystems;**
- **To rehabilitate degraded aquatic ecosystems; and**
- **To improve benefits from Ontario's fisheries resource.**

Guiding Principles

The combination of management experience and advances in fisheries science has resulted in five fundamental truths or "guiding principles" that will form the foundation for fisheries management:

- Sustainable Development
- Limit to Resource
- Natural Reproduction
- Knowledge
- Societal Benefits

Sustainable Development

- **Sustainable development requires that adverse impacts on natural elements, such as air, land, and water, be minimized to ensure the aquatic ecosystem's overall integrity.**

Ecosystems are a heritage for future generations. The use of resources today must not compromise the ability of those generations to meet their needs. Uses of air, land, and water that affect aquatic ecosystems must be environmentally sustained if society is to continue to benefit from economic development. The present state of Toronto's waterfront and rivers is an example of development that has gone too far and has eroded the quality of these waters, limiting the opportunities to fish or swim.

Limit to Resource

- **There is a limit to the natural productive capacity of aquatic ecosystems and, hence, a limit to the amount of fish that can be harvested from them.**

Since human activities, including over-harvesting, can reduce productivity, healthy fish communities can be ensured only by managing human activities.

Fish, in their natural environment, are rarely visible to humans. The damaging effects of overfishing are not readily apparent, and for that reason, the need to limit harvest is not always recognized.

Natural Reproduction

- **Naturally reproducing fish communities, based on native fish populations, provide predictable and sustainable benefits with minimal long-term cost to society.**

Although the priority shall be placed on naturally reproducing fish communities, hatchery-dependent fisheries will continue to play a role in providing fishing opportunities in Ontario. The use of hatchery-dependent and non-native fisheries will be based on the analysis of the long-term ecological, social, and economic benefits and costs.

Over 90 per cent of the fish caught in Ontario are naturally reproducing. Most of these are native species, which have evolved since the last ice age to adapt successfully to the water body in which they live. As a result, they are very predictable, cost-effective, and have little risk of failure. These species will continue to form the basis of Ontario fisheries.

Several exotic species that originated in different aquatic environments have established themselves as naturally reproducing species in Ontario. Some of these naturalized species, such as rainbow trout, brown trout, smelt, and alewives, have become valuable components of the fishery. Other exotic organisms, such as carp, sea lamprey, and zebra mussels, have become nuisance species. Naturalized species must be recognized and managed as part of the aquatic communities.

Knowledge

- **Good fisheries management is scientifically-based and relies on the acquisition and use of the best available knowledge.**

Freshwater fisheries management is a young science that has evolved over the past several decades. As we learn more about fisheries, aquatic ecosystems, and socio-economics, it is vital that we use this knowledge to manage Ontario fisheries.

Societal Benefits

- **Resource management decisions, including allocation, shall be based on the social, cultural and economic benefits and costs to society, both present and future.**

For thousands of years, fish have provided an important source of animal protein for humans. Fish have been used extensively by Indian people as a source of food and for barter. Early European settlers also relied on the fisheries resource. These fish later became the basis for the largest freshwater commercial fishery in North America. More recently, Ontario's fisheries resource has become the object of considerable leisure time activity and has contributed substantially to the tourism industry. The state of fish communities is now recognized as an important measure of the health of aquatic ecosystems.

Resource management decisions must take into account the enormous contribution the fisheries resource has made to the material, physical and cultural well-being of the people of Ontario. Allocating to the resource, by providing that sufficient fish survive to sustain the resource, must be the top priority to ensure that these benefits continue to be provided in the future.

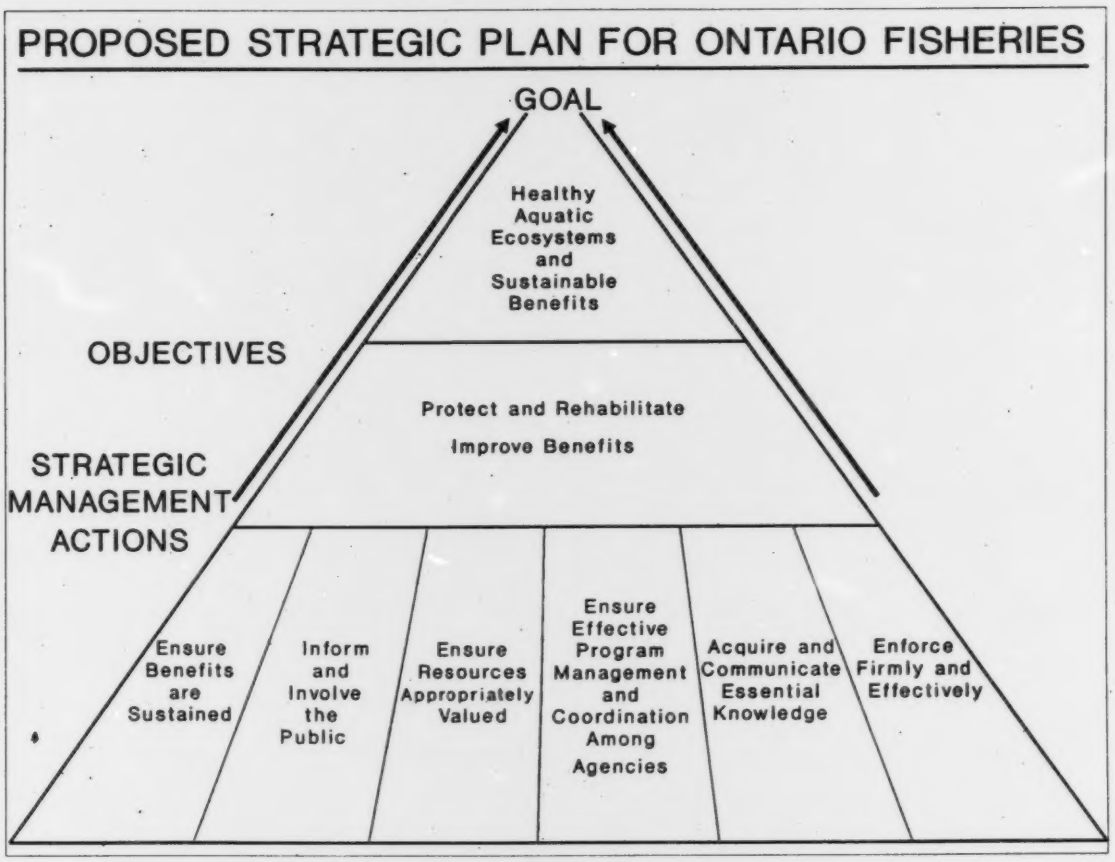
Strategic Management Actions

The following strategic management actions can resolve the issues that currently face fisheries managers. There are six broad statements of direction which provide a framework for effectively managing the province's aquatic ecosystems through the next decade and beyond. The figure on the following page shows how the strategic management actions work together to accomplish the goal and objectives.

The following six primary strategic management actions are recommended:

- **Ensure benefits are sustained by protecting and rehabilitating aquatic ecosystems.**
- **Inform and involve the public in decision making and program delivery to foster stewardship.**
- **Ensure resources are appropriately valued.**
- **Ensure effective program management and co-ordination among agencies.**
- **Acquire and communicate essential knowledge for timely and effective resource management decision making.**
- **Enforce firmly and effectively.**

Specific strategic management actions based on each of these primary statements follow.


PROPOSED STRATEGIC PLAN FOR ONTARIO FISHERIES
GOAL
Healthy Aquatic Ecosystems and Sustainable Benefits
OBJECTIVES
Protect and Rehabilitate
Improve Benefits
STRATEGIC MANAGEMENT ACTIONS
Ensure Benefits are Sustained
Inform and Involve the Public
Ensure Resources Appropriately Valued
Ensure Effective Program Management and Coordination Among Agencies
Acquire and Communicate Essential Knowledge
Enforce Firmly and Effectively

Ensure Benefits are Sustained by Protecting and Rehabilitating Aquatic Ecosystems

1. Ensure protection of healthy aquatic ecosystems and prevent further deterioration of degraded ecosystems.

2. Expand and improve efforts to rehabilitate degraded fish communities and habitat.

3. Allocate aquatic resources to provide a fair distribution of benefits to all shareholders while ensuring sustainable benefits for future generations.

    3.1 Ensure the objectives of resource protection and rehabilitation are embodied in Indian fishing agreements.

4. Provide for a variety of consumptive and nonconsumptive opportunities based on the principle that naturally reproducing fish communities provide predictable and sustainable benefits with minimal long-term cost to society.

    4.1 Base the use of non-native or hatchery-dependent fisheries on a thorough analysis of the ecological, social and economic costs and benefits over the long term.

Inform and Involve the Public in Decision Making and Program Delivery to Foster Stewardship

1. Increase the public's understanding of resource management principles, the value

of healthy ecosystems, and the results of fisheries management efforts.

2. Encourage communication among the public to foster harmony in resource use.

3. Develop and encourage public education and involvement programs based on the ecosystem approach to managing fisheries on a sustainable basis.

4. Improve consultation and involvement mechanisms for co-operative decision making and program delivery.

5. Work co-operatively through partnerships with non-government organizations.

Ensure Resources are Appropriately Valued

1. Price the resource to reflect the true cost of effective management and instil an appreciation of the value of the resource.

Ensure Effective Program Management and Co-ordination Among Agencies

1. Improve effectiveness of government management systems.

   1.1 Ensure clear program direction and establish benchmarks to evaluate program effectiveness.

   1.2 Improve program co-ordination to achieve integrated management of resources.

   1.3 Clarify responsibility and ensure accountability for decision making, program delivery and evaluation.

   1.4 Ensure staff receive appropriate training in the skills required to be effective aquatic ecosystem managers.

2. Improve co-ordination among agencies sharing responsibility for managing aquatic ecosystems.

   2.1 Recommend government policy and legislation to clarify agency roles and responsibilities.

   2.2 Recommend government policy and legislation to ensure fisheries input into decisions affecting the ecosystem.

   2.3 Develop government policy without prejudice to aboriginal or treaty rights.

   2.4 Strengthen formal mechanisms for consultation among government agencies to improve co-ordination of resource management.

   2.5 Expand co-operative programs to increase efficiency and to ensure a comprehensive approach to ecosystem management.

Acquire and Communicate Essential Knowledge for Timely and Effective Resource Management Decision-making

1. Set priorities for acquisition of new knowledge based on resource management needs.

2. Develop improved techniques for the acquisition and application of knowledge to protect and rehabilitate fish communities and habitat.

3. Develop understanding of fish communities and habitat and of the distribution and socio-economics of fisheries resources. Increase understanding of the effects of environmental and social changes, as well as the impacts of management actions.

4. Strengthen efforts to integrate information so that it is useful for decision making.

5. Improve communication of knowledge to managers, other agencies and the public to ensure understanding of the implications of management actions.

Enforce Firmly and Effectively

1. Ensure enforcement priorities reflect protection and rehabilitation needs.

   1.1 Strengthen enforcement efforts to protect fish habitat.

   1.2 Focus efforts on regulating the harvest of naturally reproducing fish stocks.

2. Evaluate effectiveness of enforcement efforts.

3. Increase efforts to ensure compliance with legislation.

Implementation and Evaluation

Implementation of SPOF II will produce fundamental changes in the way fisheries are managed in Ontario. New creative processes will need to be developed to ensure input from the public and industry.

Working groups, drawn from government organizations, non-government organizations, and shareholders, will be established to reach consensus on legislative policy and program requirements to implement SPOF II. Areas to be examined include protection, rehabilitation, allocation, opportunities, and evaluation measures. In addition, the working groups will develop a set of criteria to measure progress toward achievement of the goals and objectives of SPOF within each area.

District Fisheries Management Plans (DFMP) and Great Lakes Fisheries Management Plans (GLFMP) provide the major means to implement SPOF II at the local level. Further research and experimental management activities are essential components in the implementation plan. Pilot projects will play a vital role in the development and testing of new fisheries management methods.

SPOF II represents a dramatic departure from previous methods of managing Ontario's fisheries resource. It promotes a new way of doing business, based on sustainable development and partnerships with shareholders. By ensuring a regular review of the strategic plan, SPOF will be a dynamic process, evolving to respond to the concerns of the people of Ontario and to the availability of new knowledge.

With this strategic plan, the Ontario government is providing the leadership for fisheries management in the province. However, fulfilling the goal of SPOF II can only be accomplished with the commitment and efforts of all of the people of Ontario.

GLOSSARY

For the purposes of this document, the following definitions of key terms apply:

Allocation:
Assignment of aquatic resources for fish production and other water uses. This includes providing for sufficient numbers of fish to escape harvest in order to perpetuate the fishery as well as assigning a portion of the annual allowable yield to a group or individual.

Aquatic Ecosystem Management:
A whole-system approach to management that recognizes the interconnection of all living organisms, including humans, to their environment and to each other.

Community Fisheries Involvement Program (CFIP):
A program initiated in 1981 to encourage the public to actively participate with the Ministry of Natural Resources in fisheries management projects designed to directly benefit the fisheries resource.

Exotic:
A species that is introduced to an ecosystem where it does not occur naturally. This introduction can be deliberate or accidental.

Experimental Management:
Testing management options through controlled field experiments.

Fisheries Assessment Network:
A network of lakes, defined on the basis of their species composition, in which the response of fish communities to various stresses and levels of stress is monitored routinely.

Fishery:
A term that is usually used to describe the human use of a group of fish, and includes catching, preparing and selling the fish.

Fish Stock:
A stock is a group or aggregation of members of a species sufficiently different from other groups of the same species (e.g., behaviour, range, time and place of breeding, etc.) that such a group requires its own separate management scheme.

Hatchery-dependent Fisheries:
Fisheries that depend on the stocking of hatchery-grown fish to supplement the supply of naturally reproducing fish or to create new fisheries where natural reproduction is not possible.

Native Fish:
Self-reproducing fish species indigenous to a particular ecosystem, region or area, i.e., those species that occurred in Ontario before the North American settlement.

Naturalized Fish:
Naturalized fish are species introduced into Ontario, which are now self-sustaining.

Quota:
Maximum allowable catch of a certain species, based on a sustained harvest.

Rehabilitation:
The repair of a degraded aquatic ecosystem to a condition that sustains a fishery resource.

Shareholders:
All members of society, present and future, as everyone has an equal responsibility to preserve aquatic ecosystems for the benefit of present and future generations.

Socio-economics (of fisheries):
The description, prediction and analysis of the impact of social and economic factors on fisheries resource use and protection.

Species:
A group of genetically similar individuals which actually or potentially interbreed.

Stress:
A stimulus or succession of stimuli which, if of sufficient magnitude, will tend to disrupt the stability of a system.

Sustainable Benefit:
Something that satisfies present and future human needs and aspirations, such as a high quality environment, wholesome food, employment and income, recreational activity, and cultural heritage.

Sustainable Development:
"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (Definition from the World Commission on Environment and Development.)

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Plan d'aménagement proposé des pêches de l'Ontario

PAPO II

ÉBAUCHE

Janvier 1990

Ontario
Ministère des Richesses naturelles
Lyn McLeod
Ministre

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Ministry of Natural Resources — Minister

Ministère des Richesses naturelles — Ministre

Queen's Park
Toronto, Ontario
M7A 1W3
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Janvier 1990

Madame,
Monsieur,

Nous vous remercions de votre intérêt pour les pêches de l'Ontario.

Le ministère des Richesses naturelles s'est engagé à promouvoir le développement soutenu des ressources de la province. C'est pourquoi il a recours à la consultation publique pour l'élaboration du Plan d'aménagement des pêches de l'Ontario.

En septembre dernier, le ministère et 25 organismes gouvernementaux et non gouvernementaux se sont réunis pour faire la révision et discuter du plan d'aménagement proposé pour les pêches de l'Ontario. Les résultats des discussion tenues à ce moment ont d'ailleurs été incorporés à la présente ébauche.

Bien que ces participants aient effectué une révision des plus exhaustives, le ministère reconnaît la nécessité d'une consultation plus approfondie. Nous vous incitons donc à commenter l'ébauche présentée et à participer à l'atteinte de notre but commun : des écosystèmes aquatiques sains.

Voici donc l'occasion pour vous de collaborer à l'élaboration d'un plan qui aura non seulement un effet sur votre vie, mais aussi sur celle de vos enfants et de vos petits-enfants.

Veuillez envoyer vos commentaires avant le 16 mars 1990 à :

G.R. Whitney, directeur
Direction des pêches
Ministère des Richesses naturelles
Queen's Park, Édifice Whitney, bureau 3440
Toronto (Ontario) M7A 1W3

Je vous incite à participer à ce processus afin que vos opinions soient prises en considération lors de l'élaboration d'un plan d'aménagement des pêches à l'intention de tous les Ontariens.

Veuillez agréer, Madame, Monsieur, nos sincères salutations.

Lyn McLeod
Ministre

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INTRODUCTION

Pourquoi les pêches sont-elles importantes?

Les pêches dont les citoyens de l'Ontario ont hérité sont d'une valeur inestimable. Bien que le ministère des Richesses naturelles soit responsable de la gestion des pêches dans la province, l'effort concerté des agences gouvernementales, des industries, des groupes intéressés et des individus sera nécessaire pour que l'on puisse léguer cet héritage culturel, dans un état sain, à nos enfants et à nos petits-enfants.

Nos pêches représentent une énorme responsabilité. L'Ontario gère 24 % des ressources en eau douce du Canada, dont 40 % de la superficie des Grands Lacs et d'innombrables ruisseaux et rivières. Cette province compte environ un quart de million de lacs intérieurs, et entre cinquante mille et cent mille populations de poissons qui doivent être gérées.

Une des raisons de l'importance capitale des pêches est que les poissons jouent le rôle d'indicateur écologique. Si les écosystèmes aquatiques dépérissent, les populations de poissons en souffrent rapidement. Ainsi, le poisson agit comme le «serin des mineurs» et donne le premier signal d'alarme d'un environnement en dégradation. À l'inverse, l'amélioration des pêches indique que l'Ontario fait des progrès et nous incite à redoubler d'efforts dans l'aménagement soutenu d'écosystèmes aquatiques.

Le poisson est une ressource économique importante; la pêche sportive et le tourisme en dépendent, de même que la pêche commerciale. Des pêches saines ont une valeur inestimable simplement parce qu'elles donnent l'occasion à bien des gens d'observer les poissons et de s'étonner devant les merveilles de la nature.

Qu'est-ce que le PAPO II?

Le gouvernement de l'Ontario, avec l'aide du public, s'efforce d'élaborer un Plan d'aménagement des pêches de l'Ontario (PAPO II) pour les années 90 et au-delà. Ce plan se traduira par une action concertée à l'échelle de la province et des secteurs public et privé pour protéger les systèmes aquatiques sains et restaurer les écosystèmes dégradés. Le but principal, qui est conforme au concept de développement soutenu, est d'avoir des écosystèmes sains qui fournissent des bénéfices à long terme pour aider à satisfaire le besoin de la société pour un environnement de qualité, une nourriture saine, de l'emploi et un revenu, ainsi que des loisirs.

Progrès réalisés depuis PAPO I

Depuis l'adoption du premier PAPO par le Conseil des ministres en 1976, on a assisté à d'importantes réalisations dans la gestion des pêches de l'Ontario. Par exemple :

- Le public est mieux renseigné et plus engagé, grâce surtout au Programme de participation communautaire à la

Que signifie développement que peut soutenir l'environnement?

«L'utilisation que nous faisons aujourd'hui de ces ressources ne doit pas compromettre leur disponibilité pour les années à venir». (Tiré et traduit d'un rapport de la Commission mondiale sur l'environnement et le développement). L'homme et les activités auxquelles il s'adonne font partie intégrante des écosystèmes aquatiques. Ceci signifie que l'utilisation par l'homme de ces systèmes, y compris l'air, la terre, l'eau et le poisson, doit être compatible avec ses besoins pour assurer une qualité de vie, dont la prospérité économique et un environnement sain et sécuritaire.

gestion des pêches (PPCGP);

- L'introduction d'un permis de pêche sportive de résidents, dont les revenus aident à financer les coûts accrus de la gestion des pêches;

- La mise en vigueur de limites de prises pour la pêche commerciale afin d'assurer l'abondance des réserves de poissons et des récoltes soutenues;

- Les premières étapes dans l'élaboration des composantes d'un système d'information des pêches de l'Ontario afin d'emmagasiner, d'organiser et d'analyser les données nécessaires pour prendre des décisions judicieuses dans la gestion des ressources;

- La mise sur pied d'une approche de gestion expérimentale pour améliorer les techniques de gestion et acquérir de nouvelles connaissances;

- L'élaboration d'un Programme d'éducation scolaire sur les pêches pour permettre aux jeunes d'acquérir une meilleure compréhension des pêches et leur faire comprendre l'importance d'une sage gestion de nos ressources;

- L'élaboration de plan de gestion des pêches de district, en consultation avec le public, où sont présentés les buts à long terme et les mesures à prendre à court terme pour atteindre ces buts;

- La récupération du doré dans le bassin de l'ouest du lac Erie et les premiers indices de la réhabilitation du touladi dans le lac Supérieur;

- Un accroissement du nombre d'engagements en coopération avec d'autres organismes; et

- Une amélioration sensible dans la capacité de la province à fournir des poissons des frayères dont la qualité et la quantité répondent aux besoins des programmes de gestion des pêches.

Avons-nous besoin d'un Plan d'aménagement amélioré?

Un plan d'aménagement révisé est nécessaire pour les raisons suivantes :

- Inquiétude grandissante du public en ce qui concerne l'état de santé de

notre environnement;

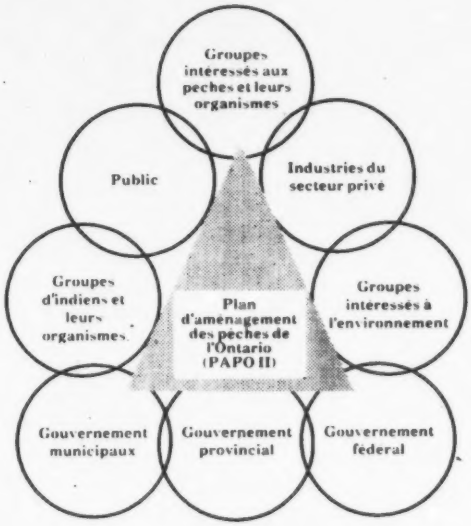
- Soutien répandu en faveur d'un développement économique que peut soutenir l'environnement (désigné sous le terme de développement que peut soutenir l'environnement); et

- Désir grandissant du public de s'engager dans la prise de décisions concernant l'utilisation des richesses naturelles.

Le ministère des Richesses naturelles sollicite la participation des usagers dans l'élaboration de PAPO II afin de développer de nouvelles associations qui aideront grandement à gérer les pêches de l'Ontario en fonction des intérêts de tous, tout en recherchant un consensus d'opinion.

Étapes de l'élaboration de PAPO II

L'existence d'un consensus d'opinion parmi les citoyens de l'Ontario est essentielle à l'élaboration de PAPO II. À ce jour, des représentants des ministères principalement concernés et des groupes intéressés travaillent ensemble à l'élaboration de mesures d'action. Plusieurs réunions préparatoires ont eu lieu et ont conduit à la tenue d'un important atelier de PAPO II. Nous aurons besoin de la participation de tous les usagers pour élaborer une révision de ce document.



QUELLES QUESTIONS DOIVENT ACTUELLEMENT ABORDER LES PÊCHES DE L'ONTARIO?

Les gestionnaires des pêches de l'Ontario doivent faire face à trois menaces importantes :

- Dégradation du système aquatique et perte d'habitats de poisson;

- Perte de poissons; et

- Conflits entre les usagers.

Dégradation du système aquatique et perte d'habitats de poissons

Malheureusement, les hommes n'ont pas toujours pensé au bien-être des générations futures dans la conduite de leurs activités. De nombreux exemples démontrent que la façon dont nous avons utilisé l'air, la terre et l'eau a résulté en

une dégradation des systèmes aquatiques. Certains des problèmes énumérés ci-dessous nécessitent des solutions à l'échelle mondiale, tandis que d'autres peuvent être traités efficacement au niveau local :

- Le réchauffement de la planète, connu sous le nom d'«effet de serre» menace d'entraîner l'élévation du niveau des océans et la baisse de celui des lacs et des rivières au début des années 2000.

- Herbicides, pesticides et autres substances contaminantes se sont infiltrés dans les lacs et les rivières et se sont amassés dans l'organisme des poissons et des autres formes de vie.

- Les pluies acides ont altéré la qualité de l'eau et endommagé les pêches.

- De nombreux habitats de poissons, surtout dans le sud de l'Ontario, ont été détruits à la suite d'un aménagement abusif du littoral.

- La construction de barrages et la canalisation des ruisseaux ont souvent eu des effets désastreux sur les populations de poissons et les autres organismes aquatiques.

- Des exploitations forestières erronées ont modifié le bord des ruisseaux et les débris de ces exploitations, de même que le limon résultant de la construction de routes, se sont infiltrés dans les lacs et les rivières et ont recouvert les oeufs et le fretin.

- Les déversements directs et indirects de déchets municipaux, industriels et agricoles dans les lacs et les rivières ont nui à la qualité de l'eau.

Pertes de poissons

La pêche excessive demeure la principale raison de la diminution du nombre de poissons parce que :

- L'accès illimité aux lacs et aux rivières a entraîné une pêche excessive, ce malgré le respect des lois sur la possession, l'équipement et les autorisations de telle sorte que des populations de poissons peuvent être totalement éradiquées de certains cours ou plans d'eau.

- Des pertes apparemment sans importance dans les populations de poissons locales entraînent une dégradation de l'ensemble des ressources.

Conflits entre les usagers

Les pêches répondent à différents besoins. Certains pêchent pour se nourrir ou s'adonnent à la pêche sportive, tandis que pour d'autres, la pêche est un emploi et une source de revenu. D'autres encore préfèrent simplement observer les poissons. De nombreux Indiens inscrits jouissent d'une situation unique où un traité leur donne le droit de pêcher pour se nourrir sur des terres de la Couronne inutilisées dans des régions dont les limites sont déterminées par les traités. Certaines personnes considèrent le poisson comme le baromètre de l'environnement humain. Depuis quelques années, un nombre grandissant de personnes s'inquiètent du bien-être des animaux, dont le poisson.

En fait, nous sommes tous des usagers des pêches, et de ce fait, nous avons tous la responsabilité de protéger cette ressource.

Le besoin d'avoir des associations de gestionnaires en mesure d'élaborer des plans pour une utilisation rationnelle des ressources et d'établir une volonté commune de protection des ressources se fait de plus en plus pressant :

- À l'heure actuelle, les occasions d'une participation significative du public à tous les échelons de la gestion ne sont pas adéquates.

- Des conflits interviennent entre les usagers qui n'ont pas les mêmes valeurs et qui, par conséquent, ne peuvent s'entendre sur la façon de partager les ressources.

- Dans le passé, les décisions des gestionnaires des ressources n'ont pas toujours été cohérentes, ce qui peut avoir contribué aux dissensions sur le partage des ressources.

Les problèmes actuels comportent :

- **L'incapacité d'influencer la demande**

  - Les gestionnaires sont incapables d'influencer la demande pour le poisson et la pêche.

- **L'incapacité de répondre à la demande**

  - Les tendances à long terme semblent indiquer que la demande pour le poisson et la pêche augmente, en raison surtout de l'accroissement des centres urbains, de l'augmentation des revenus des particuliers et des heures de loisirs ainsi que de la demande accrue pour des endroits de pêche de haute qualité pour attirer les touristes dans la province.

- **Limites de l'offre**

  - Les demandes sont souvent peu réalistes et peuvent mener à un nombre de prises trop élévé.

  - L'offre et la distribution du poisson varient énormément d'une région à l'autre de la province, et l'accès à la pêche est souvent restreint en raison des obstacles naturels, des distances ou de la propriété privée.

  - Le contrôle des prises est actuellement inadapté; les gestionnaires sont incapables d'évaluer, de prédire et de régulariser la demande.

Causes sous-jacentes

Les principaux problèmes sous-jacents à ces questions sont :

- L'opinion selon laquelle les ressources sont de propriété commune

  - Traditionnellement, on croit que le poisson et les écosystèmes aquatiques sont gratuits et de propriété commune. Cette situation provient d'une sous-évaluation de la ressource. On peut affirmer que les gens qui ne paient pas directement pour l'utilisation d'une ressource ont tendance à commettre

des abus ou à gaspiller ces ressources.

- **Protection incomplète**

  - La protection intégrale des ressources n'a pas toujours été assurée par la mise en application des lois existantes.

  - Les priorités de mise en application des lois ne sont pas suffisamment explicites.

  - Un engagement à évaluer les résultats des efforts de mise en application des lois est nécessaire à l'échelle de la province.

- **Institutions de gestion inefficaces**

  - Plusieurs agences se partagent le mandat de protection et de gestion des ressources et il est souvent difficile de savoir laquelle a le plus d'autorité.

  - La division des responsabilités de gestion et de protection a occasionnellement entraîné des conflits concernant les décisions prises dans la gestion des ressources.

  - Les agences gouvernementales ont souvent été réticentes à l'idée d'intéresser d'autres parties à l'élaboration des politiques et des prises de décision.

  - Les mécanismes de législation actuels prennent du temps et la bureaucratie est tatillonne.

  - Les politiques et les lois provinciales ne sont pas à la mesure des demandes faites sur les ressources.

  - La coordination entre les agences doit s'améliorer.

  - Une ligne de conduite mieux définie et un meilleur leadership sont nécessaires pour pouvoir mettre en place des programmes qui reposent sur le principe d'une gestion intégrée pour atteindre un développement soutenu.

  - Les critères d'évaluation de la pertinence et de l'efficacité des programmes sont insuffisants pour le moment.

- **Manque de connaissances**

  - L'état des ressources est très souvent totalement ignoré.

  - La distribution des pêches en Ontario n'est connue qu'en partie.

  - Les connaissances sur les conditions des habitats des différentes espèces ne sont que fragmentaires.

  - La dynamique des communautés de poissons est très peu comprise.
  - La socio-économie des pêches est une science très peu étudiée.

  - Les conséquences des activités humaines à l'échelle locale,

régionale et mondiale à court et à long termes sont généralement très mal comprises.

- Les besoins des gestionnaires des ressources n'ont pas toujours été pris en considération lorsque l'on a établi les priorités pour obtenir de nouvelles connaissances scientifiques.

- Les techniques de collection des données n'existent pas encore dans certains cas.

- Les données ne sont pas toujours présentées sous une forme utilisable dans le processus de prise de décisions.

- Les nouvelles connaissances n'ont pas toujours été communiquées efficacement aux gestionnaires des ressources, aux autres agences et au public.

Conséquences

Les conséquences des questions mentionnées ci-dessus et leurs causes sous-jacentes se manifestent de plusieurs façons:

- **Occasions manquées**

  - La dégradation des écosystèmes aquatiques empêche la société de tirer profit des pêches. Les pertes de bénéfices peuvent être directes (environnement malsain, nourriture contaminée, pertes d'emplois et de revenus) ou indirectes (l'industrie touristique subirait le contrecoup de la perte de pêches saines et de haute qualité).

- **Pertes génétiques**

  - Des ressources génétiques uniques sont perdues de façon irrémédiable lorsque des populations de poissons sont réduites ou éliminées, et cette perte gêne les efforts de réhabilitation.

- **Substances contaminantes**

  - Les substances contaminantes s'accumulent dans l'organisme des poissons, portant atteinte à leur survie, et les rendant impropres à la consommation humaine.

- **Invasion par des espèces exotiques**

  - Des espèces exotiques peuvent s'implanter dans des systèmes dégradés et s'attaquer ou entrer en compétition avec les espèces indigènes, ce qui gêne nouveau les efforts de réhabilitation.

  - Les espèces de poissons exotiques, telles que la carpe ou la lamproie de mer, offrent peu de valeur et occasionnent une perte directe ou indirecte de revenu à mesure que déclinent les espèces de poissons ayant une grande valeur économique.

- **Les pêches dépendant des frayères**

  - L'empoissonnement avec des poissons de frayère a quelquefois

aidé, dans le passé, aux efforts de réhabilitation en restaurant des stocks indigènes ou en allégeant les pressions de la pêche sur les populations indigènes trop pêchées. Trop fréquemment, les pêches qui dépendent des frayères ont été favorisées et acceptées en dépit des connaissances incomplètes sur leurs conséquences à long terme pour les communautés de poissons indigènes. La présence de poissons de frayère, élevés dans des conditions idéales avant l'empoissonnement donne l'impression que le système aquatique est sain. Cette idée fausse peut entraîner la perte de l'appui du public pour la réhabilitation à long terme.

- L'empoissonnement avec des poissons de frayère peut appauvrir la composition génétique des stocks indigènes ou las remplacer par ecIle des poissons de frayère, qui contient moins de variations et, par conséquent, a une capacité moindre à s'adapter à un environnement en changement.

UN PLAN D'AMÉNAGEMENT DES PÊCHES DE L'ONTARIO

L'adoption d'une vision commune des écosystèmes sains et un engagement de la part des individus, de l'industrie et du gouvernement, nous rendront aptes à faire face au défi que pose la gestion des pêches de l'Ontario.

L'ébauche du pan proposé pour résoudre les problèmes mentionnés plus haut repose sur les principes de gestion suivants :

- But des pêches de l'Ontario;
- Objectifs;
- **Principes directeurs** pour la fondation de la gestion des pêches; et
- Mesures de gestion stratégiques pour résoudre d'importants problèmes inhérents à la gestion des pêches.

But des pêches de l'Ontario

Des écosystèmes aquatiques sains afin d'assurer des bénéfices soutenus pour répondre, en partie, aux besoins présents et futurs de la société pour un environnement de haute qualité, une nourriture saine, un emploi et un revenu, des loisirs et un patrimoine culturel.

Objectifs

Afin d'assurer des bénéfices soutenus au cours de la prochaine décennie et au-delà, les objectifs du plan d'aménagement seront de :

- **protéger les écosystèmes aquatiques sains;**
- **réhabiliter les écosystèmes dégradés; et**
- **améliorer les bénéfices des pêches de l'Ontario.**

Principes directeurs

L'expérience en gestion et l'acquisition de nouvelles connaissances dans le domaine des sciences des pêches nous ont amenés à reconnaître plusieurs vérités

fondamentales sur lesquelles reposent les décisions des gestionnaires des pêches. Ces principes directeurs demeurent le fondement de la nouvelle politique et de l'élaboration d'un programme pour la gestion des pêches :

- Développement soutenu
- Limites des ressources
- Reproduction naturelle
- Connaissances
- Bénéfices pour la société

Développement soutenu

- **Le développement soutenu d'écosystèmes aquatiques exige que les effets négatifs sur la qualité de l'air, de l'eau et des autres éléments ntaurels soient minimisés afin de pouvoir maintenir l'intégrité de l'écosystème dans son ensemble.**

Les écosystèmes doivent être légués aux générations futures, ce qui signifie que l'utilisation que nous faisons aujourd'hui de ces ressources ne doit pas compromettre leur disponibilité pour les années à venir. L'environnement doit pouvoir supporter l'utilisation des écosystèmes aquatiques si la société veut continuer à profiter du développement économique. L'état actuel du front du lac et des rivières à Toronto illustre parfaitement comment un développement trop poussé peut altérer la qualité des eaux, limitant les activités de pêche ou de baignade.

Limites des ressources

- **La capacité naturelle de production des écosystèmes ayant des limites, la quantité de poissons que l'on peut pêcher d'un écosystème est aussi limitée.**

Puisque les activités humaines peuvent diminuer la capacité de reproduction des populations de poissons, on ne peut assurer leur survie qu'en gérant les activités humaines. Les hommes ne voient que rarement le poisson dans son milieu naturel. Les effets nuisibles d'un trop grand nombre de prises ne sont pas toujours apparents et c'est pourquoi certaines personnes ne se soucient pas de limiter leurs prises.

Reproduction naturelle

- **Les communautés de poissons qui se reproduisent naturellement, à partir de populations indigènes, fournissent des bénéfices prévisibles et soutenus et ne représentent que des coûts à long terme minimes pour la société.**

Les communautés de poissons qui se reproduisent naturellement resteront prioritaires. Toutefois, les pêches dépendantes des frayères continueront à jouer un rôle dans l'empoissonnement des eaux de l'Ontario. Le recours à des pêches dépendantes des frayères et à des espèces de poissons non-indigènes doit reposer sur des études à long terme des coûts et des bénéfices écologiques, sociaux et économiques.

Plus de 90 % des poissons pêchés en Ontario proviennent d'espèces indigènes qui se reproduisent naturellement. Ces espèces évoluent dans ces eaux depuis la dernière époque glaciaire et s'y sont adaptées avec succès. Par conséquent,

elles sont prévisibles, rentables et connaissent des risques d'échec minimes. Ces espèces continueront de constituer la base des pêches de l'Ontario.

Plusieurs espèces exotiques provenant de milieux aquatiques différents se sont établies puis adaptées dans les lacs et les rivières de l'Ontario. Certaines de ces espèces sont désormais parmi les plus prisées, telles que la truite brune, la truite arc-en-ciel, l'éperlan et les gaspareaux. D'autres espèces, telles que la carpe, la lamproie de mer et les moules zébrées sont devenues des espèces nuisibles. Les espèces naturalisées font partie intégrante des communautés aquatiques de l'Ontario, elles doivent donc être reconnues et gérées comme telles.

Connaissances

- **Une bonne gestion des pêches repose sur les meilleures connaissances scientifiques disponibles.**

La gestion des pêches est une science récente qui évolue progressivement depuis quelques décennies au fur et à mesure que l'on acquiert une meilleure compréhension des écosystèmes aquatiques, des pêches et des facteurs socio-économiques. Il est essentiel de mettre à profit l'ensemble de ces connaissances pour mieux gérer les pêches de l'Ontario.

Bénéfices pour la société

- **Les décisions en matière de gestion des ressources doivent prendre en compte les bénéfices et les coûts pour la société, dans le présent et l'avenir.**

Depuis des milliers d'années, le poisson est une source importante de protéines animales pour l'homme. Il représentait un élément de base de la nourriture des Indiens ainsi qu'un élément d'échange, puis tint une place tout aussi essentielle pour les premiers colons européens. Plus tard, ces mêmes espèces ont assuré la pêche commerciale en eau douce la plus importante en Amérique du Nord. Aujourd'hui, les pêches de l'Ontario occupent une place importante dans les loisirs et contribuent de manière significative à l'industrie touristique. La santé des populations de poissons sert de plus en plus à évaluer l'état des écosystèmes aquatiques.

Les décisions en matière de gestion des ressources doivent prendre en considération l'apport considérable des pêches au bien-être matériel, physique et culturel des Ontariens. Il est primordial de soutenir financièrement cette ressource, en maintenant des populations de poissons suffisantes pour faire en sorte que ces bénéfices soient toujours disponibles dans l'avenir.

Mesures de gestion stratégiques

Les mesures de gestion stratégiques suivantes peuvent résoudre les problèmes auxquels doivent actuellement faire face les gestionnaires des ressources. La gestion efficace des écosystèmes aquatiques de la province au cours de la prochaine décennie et au-delà devrait reposer sur six grands énoncés d'orientation. Le tableau suivant démontre comment les mesures de gestion stratégique agissent de concert pour

permettre d'atteindre le but et les objectifs.

Nous recommandons les six principales mesures de gestion stratégiques suivantes:

- Assurer des bénéfices soutenus en protégeant et en réhabilitant les écosystèmes aquatiques.
- Informer et faire participer le public pour augmenter la compréhension et encourager la protection des ressources.
- S'assurer que les ressources sont estimées à leur juste valeur.
- Assurer une gestion efficace du programme et une coordination entre les agences gouvernementales.
- Acquérir et communiquer les connaissances nécessaires pour que les décisions en matière de gestion des ressources soient opportunes et efficaces.
- Faire appliquer les lois avec fermeté et efficacité.

Vous trouverez ci-dessous des mesures de gestion stratégiques précises reposant sur chacun de ces énoncés.

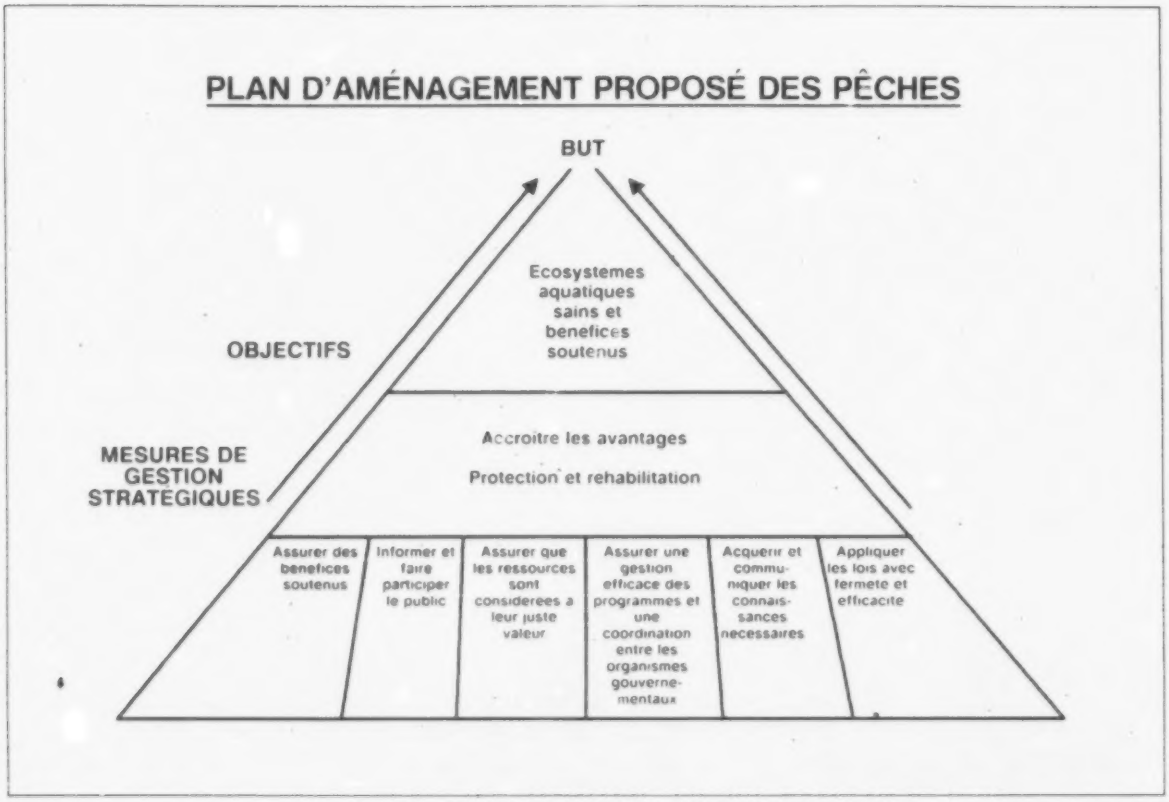
Assurer des bénéfices soutenus en protégeant et réhabilitant les écosystèmes aquatiques

1. Assurer la protection des écosystèmes aquatiques sains et empêcher une plus grande déterioration des écosystèmes dégradés.
2. Intensifier et améliorer les efforts en vue de réhabiliter les communautés et les habitats dégradés.
3. Répartir les ressources aquatiques de façon à assurer une distribution équitable des bénéfices entre tous les usagers tout en assurant des bénéfices soutenus pour les générations futures.

   3.1 S'assurer que les objectifs de protection et de réhabilitation des ressources sont inclus dans les ententes sur les pêches avec les Indiens.

4. Assurer des utilisations consomptibles et non consomptibles variées, en tenant compte du principe selon lequel les communautées qui se reproduisent naturellement apportent des bénéfices prévisibles et soutenus, à des coûts minimes à long terme pour la société.

   4.1 Recourir à l'utilisation d'espèces exotiques ou de poissons de frayère seulement après une analyse complète des coûts et des bénéfices écologiques, sociaux et économiques à long terme.


PLAN D'AMÉNAGEMENT PROPOSÉ DES PÊCHES
BUT
OBJECTIFS
Ecosystemes aquatiques sains et benefices soutenus
MESURES DE GESTION STRATEGIQUES
Accroitre les avantages
Protection et rehabilitation
Assurer des benefices soutenus
Informer et faire participer le public
Assurer que les ressources sont considerees a leur juste valeur
Assurer une gestion efficace des programmes et une coordination entre les organismes gouverne-mentaux
Acquerir et commu-niquer les connais-sances necessaires
Appliquer les lois avec fermete et efficacite

Informer et faire participer le public afin d'améliorer la compréhension et encourager la protection des ressources

1. Améliorer la communication avec le public concernant la valeur des écosystèmes sains, les principes de gestion des ressources et les résultats des efforts de gestion des pêches.

2. Encourager la communication avec le public pour favoriser des utilisations harmonieuses des ressources.

3. Développer et apporter un appui aux programmes d'éducation du public et aux programmes de participation qui expliquent la gestion soutenue des pêches à partir de l'écosystème.

4. Améliorer les mécanismes de consultation et de participation afin que divers intéressés participent aux prises de décision et à la réalisation des programmes.

5. Promouvoir les occasions de travailler en coopération avec des organismes non-gouvernementaux.

S'assurer que les ressources sont estimées à leur juste valeur

1. Faire payer l'utilisation des ressources

afin de refléter les coûts réels d'une gestion efficace et d'inculquer une appréciation de la valeur réelle des pêches.

Assurer une gestion efficace des programmes et une coordination entre les agences gouvernementales

1. Améliorer l'efficacité des systèmes de gestion internes.

   1.1 S'assurer que les programmes ont un but précis.

   1.2 Améliorer la coordination des programmes pour assurer une gestion intégrée des ressources.

   1.3 Établir clairement les responsabilités de chacun dans les prises de décision, la réalisation des programmes et leur évaluation.

   1.4 S'assurer que le personnel reçoit une formation adéquate en vue de la gestion efficace des écosystèmes aquatiques.

2. Améliorer la coordination entre les agences qui partagent la responsabilité de gérer les écosystèmes aquatiques.

   2.1 Faire des recommandations sur les politiques gouvernementales et les lois afin de définir clairement les rôles et les responsabilités des agences.

   2.2 Faire des recommandations sur les politiques gouvernementales et les lois afin que les pêches soient prises en compte lors des décisions ayant des retombées sur l'écosystème.

   2.3 Renforcer les mécanismes officiels de consultation entre les agences gouvernementales pour améliorer la coordination dans la gestion des ressources.

   2.4 Élargir les programmes de coopération afin d'accroître l'efficacité et d'assurer une gestion intégrale des écosystèmes.

Acquérir et communiquer les connaissances nécessaires afin que les décisions des gestionnaires des ressources soient opportuns et efficaces

1. Établir les priorités pour l'acquisition de nouvelles connaissances selon les besoins en matière de gestion des ressources.

2. Mettre au point des techniques d'acquisition et de mise en application portant sur la protection et la réhabilitation des communautés et des habitats de poissons.

3. Acquérir une meilleure compréhension des communautés et des habitats de poissons de même que la distribution et des habitats de poissons de même que de la distribution et des valeurs socio-économiques des pêches. Acquérir également une meilleure compréhension des conséquences des mesures prises par les gestionnaires et des changements écologiques et sociaux.

4. Intensifier les efforts pour assimiler

l'information afin qu'elle serve dans les prises de décisions.

5. Transmettre de façon plus efficace les nouvelles connaissances aux gestionnaires, aux autres agences et au public afin d'assurer une meilleure compréhension des implications des options offertes aux gestionnaires.

Mise en application des lois avec fermeté et efficacité

1. S'assurer que les priorités dans la mise en application des lois répondent aux besoins de protection et de réhabilitation.

   1.1 Appliquer plus sévèrement les lois régissant la protection des habitats de poissons.

   1.2 Réglementer plus sévèrement les limites de prises des populations qui se reproduisent naturellement.

2. Évaluer les efforts de mise en application des lois.

3. Augmenter les efforts pour assurer le respect des lois.

Mise en application et évaluation

La mise en oeuvre de PAPO II apportera des changements fondamentaux dans les méthodes de gestion des pêches en Ontario. Il faudra mettre au point de nouvelles techniques permettant d'assurer une participation active et créative de la part du public et de l'industrie.

Des groupes de travail formés de représentants des ministères, des organisations non-gouvernementales et des usagers seront mis en place pour parvenir à des consensus d'opinion sur la politique législative et le contenu des programmes qui assureront l'application de PAPO II. Plusieurs domaines feront l'objet d'une attention particulière : ce sont la protection, la réhabilitation, la répartition, les occasions et les mesures d'évaluation. En outre, les groupes de travail créeront un ensemble de critères destinés à mesurer les progrès accomplis dans la réalisation des buts et des objectifs que PAPO II a fixés pour chaque domaine.

Les plans de gestion des pêches de district et les plans de gestion des pêches des Grands Lacs sont les principaux éléments de la mise en oeuvre de PAPO II au niveau local. La poursuite des travaux de recherche et des activités de gestion expérimentales sont essentielles au plan d'application. Des projets pilotes joueront un rôle capital dans le développement et la mise à l'essai des nouvelles méthodes de gestion des pêches.

PAPO II marque la fin d'un certain type de méthodes de gestion des pêches de l'Ontario. Ce plan favorise des nouvelles méthodes commerciales, sur la base d'un développement soutenu et d'associations avec les usagers. Si le plan d'aménagement fait régulièrement l'objet de mises à jour, PAPO II deviendra un projet dynamique, capable de répondre aux inquiétudes des citoyens de l'Ontario et d'accéder à de nouvelles connaissances.

Grâce à ce plan d'aménagement, le gouvernement de l'Ontario montre la voie

à suivre en matière de gestion des pêches dans la province. Toutefois, ce n'est qu'avec la participation et les efforts de tous les Ontariennes et Ontariens que les objectifs fixés par PAPO II pourront être atteints.

LEXIQUE

Aux fins du présent document, les définitions suivantes s'appliquent :

Agression du milieu :
Un stimulus ou ensemble de stimuli qui, d'une intensité suffisante, sont susceptibles de bouleverser l'équilibre d'un système.

Bénéfice soutenu :
Ce qui répond aux aspirations et aux besoins présents et futurs de l'homme, par exemple un environnement de haute qualité, une nourriture saine, un emploi et un revenu et des loisirs.

Concessions :
Action de désigner les ressources aquatiques pour la production de poisson et autres usages des eaux. Ce qui signifie s'assurer que suffisamment de poissons ne sont pas pêchés afin que les pêches se perpétuent et également accorder une partie des prises annuelles permises à un groupe ou à un individu.

Développement soutenu :
«Un développement qui répond aux besoins actuels sans compromettre la capacité des générations futures de répondre à leurs propres besoins.» (Définition tirée et traduite de la World Commission on Environment and Development).

Exotique :
Espèce qui est introduite dans un écosystème où elle ne vivrait pas naturellement. Cette introduction peut être volontaire ou accidentelle.

Espèce :
Ensemble d'individus d'aspect semblable capables d'engendrer des individus féconds.

Gestion d'un écosystème aquatique :
Approche globale de la gestion qui reconnaît les liens étroits de tous les organismes vivants, y compris l'homme, entre eux et avec leur environnement.

Gestion expérimentale :
Vérification des options en gestion grâce à des expériences contrôlées sur le terrain.

Limite de prises :
Nombre maximum de prises permises pour une espèce donnée qui assure une pêche soutenue.

Pêches :
Terme utilisé pour décrire l'utilisation faite par l'homme d'un groupe de poissons, y compris la pêche, la préparation et la vente du poisson.

Pêches dépendant des frayères :
Pêches dépendant de l'empoissonnement avec des poissons de frayère dont le but est de compléter les populationss de poissons indigènes ou de créer de nouvelles pêches où la reproduction naturelle n'est pas possible.

Poisson indigène :
Espèces de poissons qui se reproduisent naturellement et sont indigènes d'un écosystème ou d'une région donnés, ainsi les espèces qui peuplaient les lacs et rivières de l'Ontario avant l'arrivée des

colons européens.

Poisson naturalisé :
Espèces qui ont été introduites en Ontario et qui sont à présent autonomes.

Population de poissons :
Groupe ou association d'individus appartenant à une espèce et qui sont suffisamment différents des individus d'autres groupes de la même espèce (comportement, rayon, période et lieu de reproduction, etc.) pour nécessiter un programme de gestion propre.

Programme communautaire de participation aux pêches (PCPP):
Lancé en 1981, ce programme a pour but d'encourager le public à participer activement aux côtés du ministère des Richesses naturelles à la réalisation des projets de gestion des pêches, conçus pour bénéficier directement aux pêches.

Réhabilitation :
La restauration des écosystèmes aquatiques dégradés de sorte qu'ils soient capables de soutenir une pêche.

Socio-économie (des pêches) :
Description, prévisions et analyse des conséquences de facteurs sociaux et économiques sur l'utilisation et la protection des pêches.

Usagers :
Tous les membres de la société, présente et future, puisque chacun a la responsabilité de perpétuer les écosystèmes aquatiques pour le bénéfice des générations présentes et futures.

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